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ABSTRACT

The study investigates a strategy for integration of a comprehensive urban environmental education program into an existing school curriculum. It reviews data on the development of environmental education, programs now in operation, and data on the subject community of Irvington, New Jersey. A product of the investigation was the development of a curriculum guide for environmental education for use in the sixth grade classes of the Irvington schools. The curriculum guide supplies background material, lessons, and sources for further research. The study concludes that there is a need for intervening environmental education into existing curricula, a need for preparation by teachers before implementing urban environmental education, and a need for a curriculum that will help students understand their social, physical and cultural interaction with the environment. (RE)

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AN URBAN ENVIRONMENTAL EDUCATION CURRICULUM GUIDE FOR A SIXTH-GRADE TEACHER IN IRVINGTON

A Thesis

Presented to

the Faculty of the Graduate School

Kean College of New Jersey

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Patricia Dowd

June 1978

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Chapter 1

INTRODUCTION

THE PROBLEM

By the year 1980, eight out of ten Americans will live in an urban environment. The urban child in the classroom today will be the future urban citizen responsible for crucial decisions that affect his environment.

The challenge to today's schools is to provide a curriculum that is designed to help the urban child understand the reality of his daily life and to present him with the knowledge and incentive to be an effective change agent in his community.

In recent years we have been bombarded by the media with man's concern for his environment. While radio, television, and various printed material provide information on the environment, we cannot rely upon or expect the media to accomplish the objective of educating the public. The only positive means for creating change is through Environmental Education of the children who will inherit the environment.

Irvington, New Jersey has taken a positive step toward Environmental Education with the adoption of an Urban Environmental Education Program, effective September, 1977. The program is a fragment of the desegregation program which was submitted to

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and approved by State Education Commissioner, Frederick G. Burke, in July, 1977. Courses in Urban Environmental Education have become part of the curriculum in five magnet schools in Irvington. In addition to environmental studies, the program requires pairing of classes in different schools and field trips.

The program is one that is both relevant and innovative; however, teachers involved in the program have been supplied with only general directives and idealistic goals which they must translate into a working curriculum.

Before the urban child can acquire interest in, awareness of, and understanding of his environment; before the student can master the skills in solving problems in the community; before the teacher can use the environment as a resource to enrich the curriculum; it is imperative that the teacher be prepared.

PURPOSE OF THE STUDY

The purpose of this study is to design an Urban Environmental Education Curriculum Guide, one which will aid sixth-grade teachers in Irvington, New Jersey. This study provides one strategy as to how a teacher might integrate a comprehensive Urban Environmental Education Program into an existing curriculum.

SIGNIFICANCE OF THE STUDY

The construction of a curriculum guide will offer teachers, interested in the Urban Environmental Education Program, significant data that they can adapt, modify and expand to meet their specific needs.

This study is important in that teachers will be able to more fully use this program. It will stimulate teachers' interest in recognizing the needs and assuming the responsibility for teaching environmental education.

It is possible that the curriculum guide that is devised will be of sufficient impact that it will not only be used by Irvington sixth-grade teachers, but that it will spark the creation of curriculum guides in environmental education for all grade levels.

DEFINITION OF TERMS

Environment is anything which influences or is being influenced by something else.[1]

Environmental Education is the educational process dealing with man's relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology and urban and rural planning to the total human environment.[2]

Integration is the racial and cultural coming together of different people with respect for each others' differences rather than for the desire for amalgamation.[3]

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[1] Irvington Public Schools, "Urban Environmental Education", September, 1977, p.5.(Mimeographed.)

[2] California State Department of Education, Ekistics - A Guide for the Development of an Interdisciplinary Environmental Education Curriculum, 1973, p.2.

[3] Task Force on Urban Education Report, National Education Association, Schools of the Urban Crisis, Library of Congress, Card No. 77-92863.

Magnet Schools are schools which offer aid in specific subjects to students who meet the enrollment standards which are based on ability and race.[4]

Urban Environmental Education Program is the term given to Irvington's school desegregation plan which includes courses in urban problems and features field trips and shared activities with other schools. This plan is the culmination of efforts by the Irvington Board of Education and school administrators to answer the edict of the Office of Equal Educational Opportunity to desegregate.[5]

ASSUMPTIONS AND LIMITATIONS

In presenting a curriculum guide such as this, certain assumptions and limitations need to be made. It is assumed that there is a need for the material presented. It is also assumed that the facts presented are an adequate foundation for such a project.

This study is limited by the author's impression of the specific needs of an instructor in environmental education. Other limitations include the guide's intended use for a particular grade level and location. In addition, factual data regarding the origin of the Urban Environmental Education Program is limited to that made available to the author.

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[4] Irvington Herald, July 22,1977, p.55, col.1.

[5] Irvington Herald, May 26,1977, p.1, col.1.

PLAN OF STUDY

The author plans to research existing literature with respect to Urban Environmental Education and incorporate this data into a curriculum guide. The author also wrote to various communities for information about environmental education programs already in existence.

The author will submit the completed guide to the Irvington Board of Education in the expectation that it will be utilized by administrators and teachers in Irvington, and will bring about greater involvement in the management and protection of the environment.

Chapter 2

RELATED LITERATURE

Some elementary school educators have always provided their students with some awareness and understanding of their environment. Others are willing but are overwhelmed at the concept. What is environmental education ?...why is it essential ?...when did it originate ?...how can it be integrated into the curriculum ? These are some of the questions that are asked by teachers planning to implement such a program.

This chapter explores a context which will consist of: annals of environmental education; the city as a classroom; goals for urban environmental education; objectives of an urban environmental education program; current environmental programs and the birth of urban environmental education in Irvington.

ANNALS OF ENVIRONMENTAL EDUCATION

Public concern over the physical environment, all that is around us, is as old as man's humanity. Whether labeled nature, environment, ecology, conservation or ekistics, each pertains to man's ability to understand his interdependence with the natural world and to aid himself in developing skills, attitudes and knowledge necessary to resolve environmental problems.

Throughout recorded history and earlier, people have been concerned with their relationship to the environment. Sometimes it was viewed as hostile; sometimes as nurturant; sometimes they saw themselves as part of the environment; sometimes believing themselves to be separate from and often above nature.

The environment can be viewed as a major esthetic, intellectual and emotional resource, which, according to Margaret Mead, people under stress find solace in.[6] Man's interrelationship with his intrinsic environment has yielded many significant accounts, such as the struggle with nature as seen in the Hebrews' distress about pollution and the Greeks' difficulties in urbanization and soil erosion. Folklore, mysticism and even the emergence of laws, such as, in the fourteenth century, Londoners were hung for polluting air by burning sea coal, were a product of man's relationship with the environment.[7]

Recourse to nature has been an established value since 1873 when the term ecology materialized. Intensified and publicized by the media, modern man deducted that this was an original concern; but all people known to science had concepts and concerns for nature. According to studies by Calvin W.Stillman,conservation

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[6] Calvin W.Stillman, On the Meanings of"Nature", USDA Forest Service, Children, Nature and the Urban Environment; Proceedings of a Symposium Fair, (Northeastern Forest Experiment Station, Upper Darby, Pa.,1977), p.25.(These Proceedings hereafter referred to as USDA.)

[7] Gene Marine, America the Raped (New York:Avon Books,1969) p.111.

has been a part of man's concern always.[8] It is a continuing process varying with the needs of time, the individual and society.

THE CITY AS A CLASSROOM

The city as a natural environment is a new concept, one in which there is international concern due to the fact that by the year 2000, half the world's population will dwell there.[9] Prior to this concept the urban child was divorced from the city and taken to a rural setting to experience nature, under the supposition that city life was unhealthy and artificial. Studies on the effects of this separation were not known.[10] It was often assumed that taking the child out of the city and into nature sufficed as a form of environmental education.

Conservationists in their love for nature tried to project their values on the urban child; as a result, they often found their esteemed values rejected. The defect was not in the values projected but in the lack of experience of the urban child to associate these basic values to their life.[11] Without the background, knowledge and understanding of their environment and a

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[8] Stillman, p.29.

[9] Harford Thomas, "Habitat and the Human Condition," Encyclopedia Britannica 1977 Book of the Year (Chicago, 1977), p.327.

[10] Julian W. Smith and others, Outdoor Education (New Jersey: Prentice Hall, 1972), p.16.

[11] U.U. Department of the Interior, Man and Nature in the City, (Washington: Government Printing Office, 1969), p.68.

concept of their place in that world, the urban child could not begin to make complex environmental decisions that would effect his life as an urban adult.

Can an urban child learning about the natural food chain in the forest take this knowledge back into the city as something relevant for his everyday life of concrete, air-pollution and overcrowding ? A child in a metropolitan area, deprived of the basic ecology of the city, cannot relate this to his environment unless he first is made aware of his relationship with his man-made environment, the city. Environmentalists agreed that focus must be placed on the most common experiences of the urbar child. Neighborhood pla..ing, water supply, waste disposal and how the city began are examples.[12]

According to a study done by Archbald and Gundlach it was proposed that if the child acquires understanding of his environment he will then develop attitudes that will effect his behavior toward the total environment.[13] Equipped with such knowledge, the urban child can begin his growth into a responsible urban adult capable of facing the complexities the environment presents. The urban environment, once viewed as a futile setting, is now seen

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12 Barbara J.Reid, "Whither Urban Environmental Education," Environmental Education, No.1, (Fall,1970),p.29.

13 David Archbald and Paul Gundlach, "Environmental Education: An Integrated Approach," Outlines of Environmental Education, ed. C.Shenfeld (Wisconsin:Dembar Research Services,1971), p.75.

as a rich undeveloped territory, as seen here:

> Beauty is there - grace of architectural line, the freshness of tiny unexpected parks, imaginatively designed gardens created from scanty resources. There art lives, in established museums and galleries, theaters and cinemas, but also in storefront playhouses, mural covered fences and buildings, and the studies and studios of those whose spirits are nourished by the vitality of the city. The cities offer the possibility of finding new ways for Americans to live with one another because it is here that one may find the richness of the cultural diversity which is America.[14]

Recently, as an outgrowth of this new feeling about the city a number of writers have begun to explore the city for evidence of wild nature. Kieran explored plants and animals found in New York City.[15] Dowden cited the importance of the city weeds found in cracks on sidewalks.[16] Cole revealed the life of a living fossil found in the city, the cockroach.[17] The positive attributes of the city has become a new learning environment. A positive regard toward the urban environment could increase the self esteem of the urban child and make his education more relevant. Rural and suburban areas should no longer be presented as utopian for the

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[14] Task Force on Urban Education Report, National Education Association, Library of Congress, Card No.77-92863,p.2.

[15] John Kieran, A Natural History of New York City (New York: Doubleday,1971).

[16] Anne Ophelia Dowden, Wild Green Things in the City:A Book of Weeds (New York:Crowell,1972).

[17] Joanna Cole, Cockroaches (New York:Morrow,1971).

stimuli that they presented were different but not necessarily better as so stated:

> Green is beautiful, but so is gray, the color most frequently attributed to the urban scene, a scene in which children explore and learn as actively and inquisitively as their suburban and rural peers.[18]

GOALS AND PLANNING FOR URBAN ENVIRONMENTAL EDUCATION

Prior to enforcing an environmental education program, the writer realized that there were basic goals to be maintained. Environmental education must be perceived as a method of teaching. It is not a single subject in itself but a synthesis of knowledge that should be integrated and correlated with the existing curriculum, so that it will enhance the instructional goals of the school system. Research has shown that such integration of environmental programs contributes positive factors and therefore complements the curriculum.[19]

The goal of integrating environmental education into the curriculum cannot become operational until the urban educator is prepared. The teacher must be aware of the community in which he teaches but in addition must attempt to view it from his students' eyes. The educator must acquire both a knowledge of and a sensitivity to the complexities of urban life.

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[18] USDA, Ellen Jacobs, Developing Teacher's Awareness of the Urban Child's Environment, p.162.

[19] William Freeberg and Loren E.Taylor, Programs in Outdoor Education,(Minnesota:Burgess Publications,1963)p.48;see also USDA, William R.Burch, Urban Children and Nature:A Summary of Research on Camping and Outdoor Education,p.101;James M.Richmond and Richard F. Morgan, National Survey of the Environmental Knowledge and Attitudes of Fifth Year Pupils in England,Educational Research Information Center,ERIC Document 017E.

Prior to teaching urban environmental education, some type of comprehensive in-service training program must be provided. It would be directed at helping teachers increase their understanding, interest, awareness and teaching skills and would operate throughout the school year so it could be effectively used when needed. The development of such a training program can be based on those training programs already in effect, but must also strive for originality, that is, satisfy the academic, psychological and physical needs of its particular students.[20] Although there is an enthusiasm for such programs, little is known about the talents needed to construct or disseminate them.

Providing such training for teachers has been the key to success for communities already involved in environmental education and must be a priority.[21] It is important to note that the acceptance and degree of success depended greatly on the willingness and cooperation of those involved, specifically on the teachers' attitudes.

A major goal in environmental education is to foster the understanding that the environment is not only biological and cultural; it is aesthetic, ethical, economical, social and political.[22]

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[20] John B.Davis, "A Case Study:Change in a Big City School District," Journal of Teacher Education, XXVI(Spring,1975),p.48;see also William F.Goggin and Alan M.McLeod, "Taking CUE in the Inner-City,Clearing House(November,1975),p.122.

[21] J.Y.Wang, "A Systems Approach Toward Environmental Education," Environmental Education,No.1(Fall,1970),p.46.

[22] California State Department of Education, Ekistics(California, 1973),p.23.

Man's environment is his home, the community, the factory, the forest, the sea, in a broad sense, the world. The goal is to nurture an ecological conscience; one that makes the student aware that he is unique and responsible for himself but at the same time inseparable from the environment and therefore responsible for it. To foster this goal the educator must meet the child where he is and work from his experience.[23] Then, after realization of his role the educator broadens the student's scope on a communal, regional, national and international level. Thus, as a future citizen, he will have the incentive and tools to cope effectively with his community.

Finally, the learner must have an active role in this curriculum. The attitudes developed should be a result of personal experience and thinking, not merely through presentation. There is scientific evidence that learning is faster, retained longer, and appreciated more if learned firsthand.[24]

The curriculum of the city school must be designed to help the child of the urban crisis understand the reality of his life, his role in it and how he can and will affect it. "The school which never gives children and youth experience in dealing with real situations sends out into the life of the community young people who are indifferent to or even unaware of some fundamental problems of society."[25] Nurturing respect for self and nature is a main goal of any environmental education program.

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23 Jacobs, p.161.

24 Freeberg and Taylor, p.1.

25 Freeberg and Taylor, p.48.

The goals stated by the author are just a few of the major goals essential in an urban environmental education program. They are an outgrowth of the goals set forth by Caldwell in 1970:

> To improve the human environment, both men and politics must be improved. Men make politics; political institutions influence human behavior; but behavior is also influenced by attitudes, beliefs, and values. Purposeful shaping of the environment involves the purposeful shaping of outlooks on life. The quality of the future environment depends, therefore, upon the shaping of attitudes, beliefs, and values through present education.[26]

OBJECTIVES OF AN URBAN ENVIRONMENTAL EDUCATION PROGRAM

Children have different environmental requirements at different ages. Comprehension of their environment is a staged, sequential process dependent on the child's individual culture, personal history and prior experience with the environment.

In the sixth-grade urban environmental program, the human element should be uppermost in objectives. The curriculum must reflect the needs, interests, capacities, and desires of the student and simultaneously present a challenge. Results of investigations by Shepard have indicated that sixth-grade students, eleven or twelve year olds, have a need to confront the reality of nature.[27]

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[26] Lynton K.Caldwell, Environment:A Challenge to Modern Society, (New York:Natural History Press,1970), cited by George H. Moeller, USDA, Research Priorities in Environmental Education, p.222.

[27] USDA, Paul Shepard, Place and Human Development, p.9.

Therefore, environmental education at this level should incorporate that which is explicit and tangible. Instead of discussions on destruction of nature in East Africa, emphasis should be on the dangers that surround the immediate environment. The home, classroom, school and community should be the learning laboratory where the student first recognizes his close relationship with nature. Then, his scope can be broadened to a more global attitude.

Studies on the environmental attitudes of sixth graders revealed that children with urban backrounds benefit most from programs that are oriented toward unfamiliar natural processes within their own community, such as water resource uses. Results also indicated that attitudes most easily transferred at this age are those that relate to the role man plays as a contributor to the environmental problems. Abstract attitudes, such as those concerning natural ecological processes noticed in life-death cycles, are more difficult to transfer.[28] Concentrated experiences in the outdoors were also recommended at this age for there is a great mystique in the unknown terrain.

The prime directives during the sixth grade are to provide a foundation for environmental action, interest and decision making. Motivating students to investigate, developing their knowledge and presenting, identifying and experiencing realistic environments would provide this foundation.

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[28] USDA, John C. Benjamin, George H. Moeller and Douglas A.Morrison, Measuring Environmental Attitudes of Elementary School Students. pp.95-100.

The community should be viewed as a resource to the urban educator. It can be a source of field trips, informed speakers and appealing programs. It can also be seen as a challenge, as an environment that has been ravaged by man but also can be rectified by him.

CURRENT ENVIRONMENTAL PROGRAMS

The introduction of environmental education programs into the nation's schools is presently progressing at an unsteady rate. According to a recent report of the National Center for Educational Statistics, United States Office of Education, eighteen percent of the 23.9 million elementary school pupils and nine percent of the 17.2 million secondary school pupils were enrolled in environmental education courses in 1970.[29]

Nationwide observations in 1973 of 1092 school systems and over 2400 curriculums indicated that every school system studied mentioned conservation in their curriculum, but a closer examination revealed that as a topic it was not even considered in about sixty-five percent of the schools.[30]

Many regions of the country have records of achievement in the development of environmental education programs such as the

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[29] USDA, George H.Moeller, Research Priorities in Environmental Education, p.220.

[30] California State Department of Education, Ekistics (California, 1973), p.14.

"Outdoor and Environmental Education Manual" used by teachers in the Nashville Metropolitan Schools.[31] In certain select schools in South Carolina a series called "People and Their Environment" is used.[32] Teachers in Lee County Schools,Ft.Meyers,Florida have developed their own environmental program and have incorporated it into the schools.[33] New Jersey has prepared thirteen educational units,"Environment and the Quality of Life", available upon demand from the state department.[34] Most were lacking the coordinated statewide effort that made California's "Ekistics" program a well polished model.

California's"Ekistics"program, a term specifically referring to their study of man and his environment, was adopted after the California State Legislature, in 1968, wrote into their existing education code a requirement for environmental education in both elementary and secondary schools. This program was the result of an intensely systematic plan which stated goals and objectives. It identified the needs of teachers,students and the community. After evaluation of the found needs, in service training was provided for instructors along with curriculum material, advisors and a

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[31] Elizabeth Roller, "Outdoor and Environmental Education Manual" (Nashville Metropolitan Schools:Teacher's Workshop).(Mimeographed.)

[32] Matthew J.Brennan, "People and Their Environment"(Chicago: J.G.Ferguson Publishing Company,1969).

[33] Lee County School System,"On Campus Teaching"(Florida: Environmental Education Program). (Mimeographed.)

[34] New Jersey Council for Environmental Education,"Environment and the Quality of Life"(Trenton:N.J.Education Association,1965).

functional resource library. Each was under constant revision.[35]

The achievement and maintenance of numerous programs were in debt to the efforts of government agencies, private enterprise and local conservation groups. The Garden Club of America, Keep America Beautiful Society, National Society for Environmental Education and the United States Environmental Education Association were but a few that offered aid to anyone interested in the environment.[36]

Here in the United States, the latitude of environmental education advanced from an acknowledged term to state-wide educational programs. However, the United States is not an entity in this concern. In England, where environmental programs are in effect, children and parents organized outings in the country and learned together the mysteries of nature. On a global scale, since 1972, the United Nations has staged five world conferences on various themes of world concern, one of which is educating the populace about their habitat.[37]

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[35] California State Department of Education, Ekistics (California, 1973), pp. v-vi.

[36] Lee County Environmental Education Staff, "Community Resource Directory "(Florida: Lee County Schools), pp. 54-66. (Mimeographed.)

[37] Harford, p. 327.

BIRTH OF URBAN ENVIRONMENTAL EDUCATION IN IRVINGTON

On November 5, 1969 the State Board of Education issued a directive to the New Jersey schools to desegregate. Since, the issuing of this edict, Irvington has been pressured for a plan of desegregation to remove the racial imbalance or face the loss of four million dollars in state funds.

The racial imbalance in Irvington was focused on the large minority population in Grove Street School(92 percent) and Berkeley Terrace School(97 percent), compared to other schools in the district such as Chancellor Avenue School(19 percent),Florence Avenue School (13 percent) and Madison Avenue School (23 percent). The minority statistics of Irvington have risen from 15.2 percent in 1970 to 43 percent in 1975, and now to well over 50 percent in 1977.[38]

Irvington is also plagued with a highly mobile student body; 25 percent of the minority students by fourth grade have attended four or more different schools, and only one out of seven seventh graders have attended all Irvington Schools.[39] Hoping that integration would occur as a natural result of this motility and offering the single High School as an existing integrated sample, the board did not offer an alternate plan for desegregation.

Further pressure from the state forced Irvington to resolve this issue. In March, 1975, Ramsey Associates of Trenton were hired by the Irvington Board of Education as consultants, to help prepare

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38 Irvington Herald, July 3,1975,p.1,col.5.

39 Irvington Herald, May 26,1977,p.1,col.4.

a desegregation plan. Their recommendation was that there should be no change in the present physical area plans for the elementary grades, but a plan should be initiated for "programmatic provisions to enrich and enhance the curriculum and better meet the learning needs as determined by the Board of Education."[40] Although this seemed to pave the way for the next step, this team was not credited with any role in the inception of the Urban Environmental Education Program.

On July 22,1977, the State Education Commissioner,Frederick G.Burke, approved the long awaited desegregation plan for Irvington, to take effect on September,1977. The plan established a series of magnet programs homed at specific schools and offering aid in special subjects. Included was a Spanish-French magnet program, an intellectually-gifted magnet program, and an artistically-talented magnet program. Students eligible for these programs had to be tested for ability. When chosen, transportation to the new school would be the responsibility of the parent.

The Urban Environmental Education Program, titled UEE, would pair classes in Berkeley,Chancellor,Florence,Grove and Madison Avenue Schools at fifth and sixth grade levels. This magnet program offered courses in urban problems and featured field trips and other shared activities. This magnet program would feature open enrollment at Grove and Berkeley Schools exclusively. The purpose of UEE was to establish better environmental and cultural understandings by bringing

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[40] Irvington Herald, May 26,1977,p.1,col.3.

together students of diverse backrounds.[41] The objectives of the program were to develop " a corps of trained staff skilled in environmental education and human activities with diverse groups of pupils"[42] and the development of an"integrated program reflecting the racial composition of the school district."[43] With desegregation as the catalyst , UEE was fulfilling the chief purpose for school integration, which was to give each pupil the opportunity to have experiences with children from different cultural and racial backrounds.[44]

Irvington prides itself on this program being unique, yet another program has been adopted successfully in the Minneapolis Schools where the concept of pairing schools was also an alternative to busing. To make a successful transition, this system hired additional teachers and aides, initiated a teacher resource center and actually involved the community in the planning.[45]

In September UEE began in the Irvington Schools. Teachers were notified in September and at that time prepared. Teachers were provided with an innominate accumulation of research called a UEE guide, to aid them in implementing UEE into the curriculum. The only additional aid furnished for the teachers has been sporadic scheduled meetings of those teachers involved in UEE. Although Irvington's UEE is

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41 Irvington Public Schools, "Urban Environmental Education", September,1977,p.5. (Mimeographed.)

42 Irvington Herald, May 26,1977,p.1,col.3.

43 Letter from Mr.Cohen,Assistant Superintendant of Schools,November 8,1977.

44 Task Force on Urban Education Report, National Education Association, Library of Congress,Card no,77-92863,p.6.

45 Davis,p.49.

a positive step toward an environmental education program, a need exists for a firmer foundation. Teachers involved inthe UEE program need to acquire a repertoire of teaching strategies that they can implement in their classrooms. The material provided is a broad view of UEE, but not explicit enough to be functional.

In order to develop effective methods of urban environmental education and to identify the environmental needs of the students, teachers, and community, a unified effort must be made by all involved to plan, implement and constantly revise the program.

SUMMARY

All people known to science had concepts and concern for their environment. The city as a natural environment is a new concept, one which can increase the self esteem of the urban child and make his education more relevant. Nurturing respect for self and nature is the main goal of an environmental program. The prime objective in a sixth grade is to provide a foundation for environmental action, interest and decision making. The latitude of environmental education has advanced from an acknowledged term to state-wide education programs. Irvington's Urban Environmental Education Program, a result of desegregation, is a positive step toward environmental education.

Chapter 3

URBAN ENVIRONMENTAL EDUCATION PROGRAM

The introduction of an Urban Environmental Education Program in Berkeley, Chancellor, Florence, Grove and Madison Avenue Schools, in Irvington, New Jersey, at the fifth and sixth grade level was established in September, 1977.

This chapter is a curriculum guide for a sixth-grade teacher within the Irvington Community. The function of this chapter is to aid the instructor understand and present a meaningful picture of the environment to the student.

The author elected an interdisciplinary approach to furnish the reader with a guide that has interwoven conservation concepts with the present curriculum. Concepts presented are constant and ungraded; therefore, they can be incorporated to serve the reader's needs.

The material is presented to the reader in outline form. A fraction of the outline is presented in an expanded version for clarification. Discussions, readings, audio-visual presentations, local resources, field trips, personal exploration and resource material have been included.

INDIVIDUAL IN THE ENVIRONMENT

Concept: Man is interrelated to the environment but unique within it.

Purpose: To aid student realize he is a part of the environment in which he lives. He affects the environment and in turn he is affected.

Development of Individual in the Environment:

I. Who am I ?
   A. Impressions of the Self.
      1. Use of collage to illustrate the things 'I like'.
      2. Compose identification sheet with students. Have students complete.
         a. Name, age, birthdate, place of birth and other basic facts.
         b. Good and bad qualities. Include other basic qualities.
         c. Facts about family life.
      3. Discuss role in life.
         a. Role as a student.
         b. Role as a family member.
         c. Contemplate future roles.
      4. What inanimate object would you be and why?
      5. Analyse function in the environment.
         a. Polluter or conservationist ?
         b. Producer, scavenger or consumer ?
      6. Explore feelings about the self.
         a. Discuss good and bad experiences of the past.
         b. Types of feelings about the present.
         c. Expectations of the future.
      7. My personal equipment . Use of mathematics to measure body parts.
         a. What size is my index finger ? my foot ? my leg ?
         b. What is my reach?
         c. What is my pace?
         d. Use of averages to unify class statistics.
         e. Comparison of facts within the class.
         f. Comparison of individual statistics with family members.

   B. Others' Impressions of You as an Individual.
      1. Impressions by the peer group.
         a. Have students exchange names and prepare a class dictionary of names and descriptions.
         b. Predicting the future for your classmates.
         c. Given a list of one hundred adjectives, have students choose those which match their impressions of the classmate whose name they have chosen.
      2. Impressions by the family group.
         a. Have parents complete identification sheet prepared by students. Compare parents' responses to students'.

b. Ask students to choose a family member to draw him as they see him. Bring completed drawing to class and discuss.
c. Discuss expectations of student's family for him.

3. Impressions by the Community.
a. Does the Community know you exist ?
(1) Research records kept by community.
(2) Forms of identification you apply for such as license, library card, bankbook.
b. What type of records are kept by the police ? Arrange a visit and investigate fingerprinting.
c. Assign students to research how they can view records, period of time records are kept and location.

4. Student Impressions of himself as an adult member of the community.
a. Characteristics seen favorable and unfavorable in adults.
b. Explore biographies of people admired.
c. Discuss possible careers and requirements.
d. Evaluate self on basis of many opinions of adults who know you.

II. My Environment, all that is around me.
A. I am surrounded by living things.
1. People around me.
a. What are close relationships such as parents and family?
b. What are informal contacts such as teachers and classmates ?
c. How do people, with whom I have no direct contact such as a farmer, a pilot, the janitor in school, have an effect on my life ?
d. Who are people that I admire ?

2. Plants around me.
a. Plants in the community.
(1) Collect and identify plant life around school community.
(2) Discuss needs for plant life in community.
b. Plants in the home.
(1) Plants we eat. Discuss benefits.
(2) Plants for beauty. Discuss need for proper care.
c. Plants in the classroom.
(1) What plants could exist in the classroom environment?
(2) Create a classroom greenhouse.

3. Animals Around me.
a. Creative writing to explore feeling about how it would feel to be an animal.
b. Wild animals in the community.
(1) Bird family. Sparrows, wren, starling, robin.
(2) Small animals. Squirrels, skunks, opposum.
c. Pets in the community and their service to man.
d. Pests in the community.
(1) How to identify pests such as roaches, rats and mice.
(2) Dangers presented to the community by pests.
(3) How to get rid of pests.
e. Animal control by the town. Research functions of local agencies.

B. All living organisms have similar needs.
   1. Requirements of sunlight,air,water,food,space to move, shelter from weather and animals,rest and relaxation.
   2. Effects of deprivation of requirements.
   3. Distinguish between a need and a luxury.
      a. Discuss students view of basic needs.
      b. Luxuries students consider necessities.
      c. Luxuries they forsee in their future.
      d. How does the attainment of needs and luxuries effect the natural environment ?

C. Non Living things around me.
   1. Characteristics of non living things.
   2. A classroom 'thing search'. Find one hundred non living things within the classroom.
   3. Track down the origin of non living things.
      a. Natural mineral.
      b. Man-made object.
      c. Animal or plant product.
   4. What non living thing is important to you ? Have students bring in one non living thing with special meaning and share feelings with classmates.

III. Home is where a family lives.

A. Types of homes.
   1. Single dwelling.
   2. Apartment houses.
   3. Multi-family dwellings.

B. Choice of a home is influenced by various factors.
   1. Size of home and family size.
   2. Income of family.
   3. Interests of family members.
   4. Restrictions of community.

C. Homes satisfy the needs of man.
   1. Need for rest and comfort.
   2. Need for stability or sense of belonging.
   3. Need for privacy.

D. Man sometimes feels the need to change homes.
   1. What is mobility ?
      a. Discuss experiences of students in relation to moving.
      b. What types of feelings are aroused by moving?
      c. Advantages and disadvantages of a movement.
   2. Reasons for moving.
   3. Adaptations that must be made by those who move.

E. Caring for your home.
   1. Jobs at home.
      a. Jobs of parents at home.
      b. Jobs of students at home.
   2. Repairs to the home.
      a. Simple repairs done by family members.
      b. Complex repairs calling in a professional.Discuss the various professional people who help in the homes upkeep.
   3. Items supplied to the home.
      a. List those things known that are supplied such as gas,electric and phone services.

b. What are the sources of these services ?
c. How are these items utilized in the home ?
d. Expense to the homeowner ?
(1) Installation expense.
(2) Expense based on service.
(3) How is the customer billed and how often ?

F. Personal feelings toward your home.
G. Safety in your home. Along with class make a check list of safety features to check for in the home. Have students survey their homes and suggest safety tips to the family.

IV. My family is a part of my life.
A. Identify family members by drawing family p rtrait.
B. Roles in my family.
1. Jobs in the home.
2. Jobs outside the home.
3. Stereotyped roles.
C. You, as a member of the family,change with time.
1. Discuss present status as a child, sister or brother.
2. Discuss future role as a husband,wife or parent.
D. Family traditions.
1. Discuss types of traditions as a reflection of your ethnic group.
2. Origin of your family tradition.
E. What have I inherited?
1. What is heredity ?
2. Characteristics inherited from parents.
3. Explain differences in heredity from those habits you have in common with family members.
F. Families around the world.
1. How does the location affect family groupings?
2. How do homes,occupations and family roles differ ?
3. Compare traditions.

V. The School in my life.
A. The classroom.
1. Classroom recall. Take students to another part of the school building and have them fill in an outline of their classroom.Stress detail.Return to class and discuss.
2. Discuss the classroom as a mini-environment containing plants, animals, and non living objects.
B. The school building.
1. Research the school building's history.
a. When was it built ?
b. What was the land used for before the school was built?
c. Investigate any future plans for your school.
d. Discuss suggestions from class for improvements to the school building that they have observed.
2. Getting acquainted with the school building.
a. Arrange a tour of the school building by the school custodian. Explore every room in the building.
b. Divide into groups and have students draw floor plans of the school. Display finished product in main hall as a directory.
c. Identify the different materials used in the construction of the building.

3. Building Inspection.
   a. Contact local Building Inspector and find out what he looks for in an inspection.
   b. Contact Irvington Building Inspector, Municipal Building, Irvington,N.J.(372-2100) and arrange for a classroom visit by inspector.
   c. Have student inspectors check building for areas that need immediate improvement.
   d. Have students compose letter to principal with their findings.
   e. Suggestions for school improvement.
   f. Comparison to other schools in the neighborhood. Visit other nearby schools and compare building conditions.

C. The School Personnel.
   1. Use school employees as a source of career awareness. Explore various jobs within the school setting.
   2. Interview the school personnel to acquire information relating to job skills and training.

D. Machinery in the School.
   1. Types and functions.
   2. Who uses these machines ?
   3. Who is responsible for their upkeep ?

E. The School Environment.
   1. What surrounds the school?
      a. Inventory of plant and animal life.
      b. Non living things around school such as lots,buildings and stores.
   2. Safety in and around the school.
      a. Police department and the school.
         (1) Job of the crossing guard.
         (2) Safety patrols in the school.
         (3) Crime in the school.
         (4) Function of the security guard in the school.
      b. Fire department in the school.
         (1) School fire regulations.
         (2) Arrange a visit to local fire department and investigate tools used by firemen.
         (3) Arrange a visitation by a fireman to discuss best escape methods while in school.
      c. Health department and school.
         (1) What is the role of the school nurse?
         (2) Individual role in promoting health control in school.
      d. Responsibility of teacher and students to ensure classroom safety.
   3. Improving the school environment. Undertake a class project such as wall murals,school garden or school clean-up campaign to relate to the students that they have a lasting effect on their school environment.
   4. Improving the school attitude.
      a. Awareness of the school as a community.
      b. Publicize worth of the school by student-made posters and local newspaper articles on activities in the school.

c. Improve inter-grade and inter-school relations Construct nature trail of observable plants, animals, pollution, rocks and other items. Label and conduct tours of school community with lower grades or visiting classes.

d. Improving teacher-student relationships. Allow one period a week to air out problems and feelings resulting from happenings in the classroom.

Extending the Concept:

1. Give students varied list of living and non living things. Using this list make ' your perfect environment'.

2. Use of role playing. Pretend you are a flower trying to get sunlight, a very tall building, your father, or a snake protecting itself.

3. Sensory impressions of the environment. What smells, sights, or sounds have the most impressionable memory ?

4. Exploring the unknown with your senses. Have jars containing similar colored ingredients such as salt, sugar, baking soda and detergent displayed in class. Name them using only one of your senses. What sense is the most accurate ?

5. Use poetry to express feelings about favorite things. Make use of five-lined cinquain form of poetry.

6. Prepare a slide show of community life with narration by students on tape.

7. Contact 'Shade-Tree' department in Irvington for schedule of plantings and cuttings in area. Arrange a date to observe with class.

8. Have students draw their homes and show their special place in it.

9. Research other communities or countries to compare homes, families and schools.

10. Contact Housing Authority of Irvington, 624 Nye Avenue, Irvington, N.J. 07111. Ask about local regulations on homes. Find out the number of homes and different types.

11. Contact local builder such as Palent Construction Company and invite a representative to come in and discuss steps taken in building process.

12. Read Hailstones and Halibut Bones, Mary O'Neill, New York, Doubleday, 1961, to students. Ask students what color would they be and what color would they color their homes.

13. Teachers have a family,too. Make students aware that teachers participate in similar life to theirs. Discuss.

14. Family Day. Invite members of students' families to share a lunch period with the class or some other shared activity.

15. Recycle old textbooks into picture books and puzzles for primary grades.

16. Caveman spelling. Take students outside to experience tactile spelling in the snow or mud.

17. Organize rock hunt. Identify,classify and form class rock museum. Invite other classes to view.

18. Organize a class business such as greeting cards, crafts, or edible products. Involve school in the buying and selling of class made products.

Instructional Materials:

Films: Available from Irvington Public Library for rental.[46] (372-6400)

Plants:
Crack in the Pavement,8min.,Color
Watch Out for my Plant,14 min.,Color
Natures Half Acre,33 min.,Color

Home:
My Own Yard to Play in,
7min.,Black & White
Hailstones and Halibut Bones
6min., Color

Individual:
Daffodils,10min.,Color
JT,51 min.,Color
Free to be You and Me,42 min.,Color
White Mane,39 min.,Black & White
Red Balloon,28 min.,Color

Films: Available from East Orange Library for rental.[47] (266-5625)

Animals:
Mongrel Dog,6 min.,Color
Night at the Pet Shop,14 min.,Black & White

School:
First Aid Now,15 min.,Color

Family:
Nanook of the North,55 min.,Black & White
A Very Special Day,19 min.,Color

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[46] Garden State Library Film Circuit,Free 16mm Films, 9th edition, 1977-1978.

[47] Essex Hudson Film Center, Films 1977,(East Orange Public

Films: Available from private companies with fee.

Urban Studies:Two Ways - Fee of twenty dollars for rental,15min.,Color
Con Stran Productions
3600 Conshohocken Avenue
Philadelphia,PA. 19131

Mecology - Free rental(212-586-5530)26 min., Color
Modern Talking Pictures
Library Division
1212 Avenue of Americas
New York,N.Y. 10036

Materials: Free upon request.

PLANTS IN THE CLASSROOM,VACANT LOT STUDIES,OUTDOOR CLASSROOMS ON SCHOOL SITES
National Wildlife Federation,1412 16.th. Street,N.W.,Washington,DC 20036.

JOB OPPORTUNITY GUIDES
Bureau of Employment Security,7th. and Forster Streets,Harrisburg,PA 17121.

CAREER CHOICES, CAREER OPPORTUNITIES IN ENVIRONMENTAL PROTECTION AGENCY
U.S. Environmental Protection Agency,Washington,DC 20460.

OUTDOOR EDUCATION ON YOUR SCHOOL GROUNDS:ACTION APPROACH TO BETTER TEACHING
The Resources Agency,Office of Conservation Education,1416 Ninth Street,Sacramento,CA 95814.

ENVIRONMENTAL EDUCATION PACKET
Garden Club of America,598 Madison Avenue,New York,N.Y. 10022.

ENVIRONMENTAL ACTION KIT
Keep America Beautiful,Inc.,99 Park Avenue,New York,N.Y. 10016.

Programs:

Turtleback Zoo will present 'hands on' classroom demonstration.
560 Northfield Avenue,West Orange,N.J. 07052.

PSE & Gas has assortment of speakers,presentations and literature.
Community Relations Department,Room 1178A, 80 Park Place
Newark,N.J.(430-5873)

Trips:

Bronx Zoo,New York,N.Y.

Rutgers Agricultural Farm,New Brunswick,N.J.(Mr.Griffin at 247-1766).

Tour of Newark Airoport,Newark,N.J. (624-7900).

Programs to fit your needs. Center for Environmental Studies,621 Eagle Rock Avenue, Roseland,N.J. 07068.

Irvington Police Department,contact Police Chief(372-2800).

THE COMMUNITY IN WHICH I LIVE, IRVINGTON, NEW JERSEY

Concept: The community in which the individual lives is a constantly changing entity influenced by progress of man.

Purpose: To help the students explore the past, present and future of the community of Irvington, New Jersey.

Development of The Community in which I Live, Irvington, New Jersey:

I. Origin of the community called Irvington.
   A. How it began and why? Explore origin of the name 'Irvington'
   B. Early Inhabitants of Irvington.
      1. Indians of this area.
         a. Appearance of Indians.
         b. Clothing worn.
         c. Eating and cooking habits.
         d. Shelter used.
      2. Early Settlers emigrating to Irvington.
         a. Who were they?
         b. How did they change the area?
   C. Life in Early Irvington.
      1. Jobs and industry.
         a. Manufacturing of 'Jersey Lightning'.
         b. Mills and Shipbuilding.
      2. Recreation in Colonial Irvington.
      3. Dependence on other towns.
         a. Need for trade.
         b. Communication through relay station.
   D. The Colonial Environment.
      1. Plant and animal life.
      2. Land Use.
      3. Population.

II. Irvington's Present.
   A. Current Facts about Irvington.
      1. Contact Irvington Chamber of Commerce, (372-4100), to receive booklets on statistics and general information.
      2. Size and shape.
         a. Locate Irvington on a map of New Jersey.
         b. Investigate present map of Irvington as compared to one of the original town.
         c. Discuss boundaries of town and their affect on Irvington.
   B. Advantages to the Irvington Community.
      1. Present Inhabitants. Discuss ethnic origin.
      2. Community Resources available.
         a. Clubs and recreational facilities.
         b. Educational Offerings
         c. Present government.
         d. Transportation available.
      3. Industrial Aspects.
         a. Types of Industry.
         b. Products produced.
         c. Dependence on outside industry.

4. Providing Utilities in Irvington.
   a. Sources of gas and electricity.
   b. Resources present in the community.
   c. Water resources.
      (1) Natural waterways.
      (2) Reservoirs as a source of drinking water.
      (3) Disposal of sewage.
5. Present Problems in Irvington.
   a. Rising crime rate. Have students explore the relation of the high juvenile crime rate to truancy.
   b. Overcrowding. Presently there are approximately 64,000 people within Irvington's three square miles.
   c. Mobility of residents. What is causing many families to leave Irvington?
   d. Racial Unrest.
      (1) Rising black population.
      (2) Racial imbalances in schools.
      (3) Introduction of 'Black Studies' into the curriculum.

III. Irvington's Future.
   A. Growth potential of the community.
      1. Industrial projections.
      2. Plans for unused land such as vacant Olympic Park.
      3. Plans that will affect the residents of Irvington.
         a. Housing expectations.
         b. Recreational facilities for community.
         c. Educational improvements.
            (1) Meeting the needs of changing population.
            (2) Modernizing curriculum and instructional approaches.
   B. Problems in Irvington's Future.
   C. Your place in Irvington's Future.
      1. What type of an adult citizen do you hope to be ?
         a. Taking part in Community Groups.
         b. Taking part in Government. Knowledge and Participation.
            (1) Government in the local community.
            (2) State government.
            (3) Federal government.
         c. As a caring individual.
            (1) How will you interact with your environment?
            (2) How will you interact with people in your environment?
            (3) As an adult what will you strive to do to improve your community.

<u>Extending the Concept</u>:

1. Contact Irvington Historical Society and arrange for a speaker or classroom material.

2. Interview older citizens of the community to learn how the community has changed.

3. Try to trace the students' roots. Have them interview their family members and prepare a family tree. If origins in New Jersey contact N.J. Historical Society,230 Broadway,Newark,N.J.07104 for possible information.

4. Contact Irvington Recreation Department(372-2100) and discuss local activities that your students and their family could become involved in. Possibly your students can help advertize special events sponsored by this department.

5. Irvington has a large population of senior citizens. Try to involve these citizens in a class activity such as preparing class made novelties for a group of senior citizens on a specific holiday. Try to arrange for a visit to the class by senior citizens to share their thoughts, hobbies or tales of the past.

6. Have students research Irvington's landmarks such as the oldest home,the oldest tree.

7. Give students an outline of the town and have them arrange the setting of Irvington's main buildings the way they think it should be.

8. Slide show of Irvington.Have students take pictures of scenes they feel reflective of Irvington. Prepare a tape recorded narrative to go along with the slides. Show to schools to enhance pride in the town.

9. Explore occupations in Irvington. What type of industries offer training programs ? What trades are offered in Irvington High School and Irvington Technical School?

10. To discourage crime in Irvington the police force is using the highly effective 'K-9 Corps' ,trained police dogs. Contact Irvington Police Department (372-2800) and arrange for demonstation of these highly trained dogs.

11. Hold classroom elections. Discuss registration,voting, and campaigning. Elect class officers.

Instructional Materials:

Films: Available from East Orange Public Library for rental.[48]

A Black Experience, 25min.,Color
Heritage of Slavery,53min.,Color
I Have a Dream,35 min.,Black and White

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[48] Essex Hudson Film Center,Films 1977,(East Orange Public Library, East Orange,N.J.).

Harriet Tubman and the Underground Railroad,54 min.,Black&White
Blue Dashiki , 14 min., Color
Glass, 11min., Color
Ti-Joan Goes Lumbering,16min.,Color
Big People-Little People,9 min.,Color

Films: Available from Irvington Public Library for rental.[49]

Legend of Sleepy Hollow,13min.,Color
New Found Land,52 min.,Color
North American Indian Legends,21min.,Color
Lament of the Reservation,22min.,Color
Our Totem is the Raven,21min.,Color
Grist Miller,15min.,Color
Where Ideas Grow,29 min., Color
Annie and the Old One,14 min.,Color

Materials: Free upon fequest.

'IRVINGTON, NEW JERSEY', IRVINGTON STATISTICS AND GENERAL INFORMATION
Chamber of Commerce,1007 Springfield Avenue,Irvington,N.J. 07111.

AMERICAN INDIANS
Bureau of Indian Affairs, Department of the Interior,Washington, DC 20240.
Music Division, Library of Congress,Washington,DC 20540(recordings).
Publications Service,Haskell Institute,Lawrence,Kansas 66044.

TRAVELAIDE DIRECTORY AND MAP:NORTHEAST STATES (10 copies)
3M National-Travelaide,6850 South Harlem Avenue,Bedford Park, Illinois,60501.

BLACK HERITAGE TRAIL
Boston 200, One Beacon Street,Boston,Massachusetts 02108.

INDIAN RESERVATION MAP
Indian Rights Association,1505 Race Street,Philadelphia,PA 19102.

HERITAGE SERIES:OUTSTANDING NEGRO WOMEN (class quantity)
Alpha Kappa Alpha Sorority, 5211 South Greenwood Avenue,Chicago, Illinois 60615.

NEW JERSEY INDIANS($2.00)
Publications Office,New Jersey State Museum,205 West State Street,Trenton,N.J. 08625.

Trips:

Indian Magic,New Jersey Indians, Look at Historic New Jersey
Programs Available.Reservations needed.(609-292-6347)
New Jersey State Museum,205 West State Street,Trenton,N.J.08625.

Old Barracks,Trenton ,New Jersey08625.(609-292-2121)

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[49] Free 16mm.Fims.

Camptown Common,Historical Marker,1113 Springfield Avenue, Irvington,N.J. 07111.

N.J. Bell Telephone Tour,Springfield Avenue,Irvington,N.J. (381-9900).

Pabst Brewery Tour,Grove Street,Irvington N.J.

Newark Museum,43 Washington Street,Newark,N.J.(733-6600).

U.S. National Historical Park,Morristown,N.J.(539-2016)

Liberty Village,2 Church Street,Flemington,N.J.08822. Recreation of an eighteenth century village.

Pottery Shop,Old Bonnell House,32 Watchung Avenue,Chatham, N.J.(635-6777).

ENVIRONMENTS AROUND ME

Concept: There are a variety of environments each with characteristic factors.

Purpose: To help the student become aware of the many environments around him and to aid in his understanding of these environments.

Development of Environments Around Me:

I. There are numerous environments within the world.
   A. Definition of an environment.
   B. Identification of an environment.
      1. The human body is an environment.
      2. Drop of water as an environment.
      3. A tree as an environment. Shake a tree and take a census of the life that survived in that particular environment.
      4. The forest as an environment. The New Jersey Pine Barrens.
      5. The seashore as an environment. Take class on a field trip to Sandy Hook State Beach and observe the beach life dependent on the ocean.
      6. The ocean is an environment.
         a. Marine Life. Research plants and animals and make an ocean mural for the class room wall.
         b. Discuss ocean research. Ocean as a key to the future.
            (1) Fish flour in the future? Texas A&M, Engineering Experimental Station, Texas, for information.
            (2) What would an undersea park be like? Write to First Underseas Park and Wildlife Refuge, Pennekamp, Coral Reef Preserve, Tavernier, Florida Keys.
            (3) What is Sealab ? Write to Sealab, Navy Hydrographic Office, Washington, DC.
            (4) Design an underwater city.
   C. Adapting to different environments.
      1. How do lifestyles of people reflect their environment?
         a. Mention jobs that are nonexistant in your town due to the environment.
         b. Types of homes that could not exist in your community.
         c. Recreational activities that could not take place.
      2. Living things adapt to natural catastrophe.
         a. What adaptations must man make during a snowstorm?
         b. Adjusting to the effects of a hurricane.
         c. Californians adapting to earthquakes.
         d. Volcanos as a natural catastrophe.
            (1) Discuss the formation of the Hawaiian Islands.
            (2) Create a volcanic eruption in your class. Construct a crater of modeling clay, six inches at the base and two inches at the top. Insert two teaspoons of Crystals of Ammonium Dichromate. Ignite with wooden match and watch reaction.

3. Living things try to adapt to man's progress.
   a. Some plants and animals are not able to compete with man and therefore become extinct, such as the passenger pigeon,heath hen.
   b. Some plants and animals are endangered by man's progress. These are protected by The National Wildlife Society, 1412 16th. Street,Washington,DC 20036.
      (1) Presently there is only one pair of nesting bald eagles in New Jersey but special protection and care are being given to restore them.
      (2) The wild turkey was once one of New Jersey's wild fauna. Today he is being reintroduced into New Jersey.
      (3) Rutgers University is researching various means of protecting New Jersey's Bog Turtle.
   c. Some animals coexist with man.
      (1) There are more deer in New Jersey today than in colonial times.
      (2) Birds such as the starling thrive on the urban conditions made by man.

D. Beauty in Environments.
   1. Natural beauty in the environment.Sky,sunset,flowers,trees. Have students compose a three lined poem, Haiku, with a 5-7-5 syllable count per line on one of the beauties in nature.
   2. Man's Improvement of nature.
      a. Rearrangement of natural environment by landscaping,parks.
      b. Replacing nature with man-made beauty such as modern architecture or asphalt surfaces on playgrounds.
   3. Man's viewing of nature through the arts.
      a. Arts and Crafts.
         (1) Paintings and drawings of nature.
         (2) Pottery and Sculpture.
         (3) Weaving, such as the indians did telling of nature in their weavings.See film Annie and the Old One,14 min.,Color, available from Irvington Public Library.
         (4) Display works of famous painters and discuss. Publications and Reproductions for classroom visual aids are available from Extension Service, National Gallery of Art, Washington,DC 20565.
         (5) Have students paint or draw something they think is beautiful in nature.
         (6) Capture the beauty in nature with the aid of photographs. Create a gallery of nature photographs.
      b. Music in nature.
         (1) Distinguishing animals by their sounds.
         (2) Making and playing primitive instruments.
         (3) Listening to nature's music. Silence,a babbling brook,the wind.
         (4) Listen to modern music and describe the feelings you experience when hearing it.
         (5) Have students close their eyes and relax.Play a classical music selection for them and then ask what effect did it have on their relaxing abilities.
         (6) Listen to a classical music selection intended by the composer to express personal interpretations of sounds in nature and discuss.
         (7) Compare music and noise.

c. Dramatics and Nature.
(1) Imitation of animals. Take your class into the playground, give each of them a choice and have them imitate the actions of any animal they choose.
(2) Read about early communities such as the Greeks, Romans and early indian tribes. Have students do skits about how these people explained nature. Organize a class rain dance.
(3) Make a movie depicting an event or behavior in your environment that you have observed as beautiful.

d. Dance and Nature.
(1) Explore the many different types of dances known.
(2) How can a dance sometimes tell a story? Show the ballet,Nutcracker, a classical ballet or Heavenly Star, a rock and roll ballet. Discuss.
(3) Introduce your class to some simple ballet exercises to firm up their muscles.
(4) Discuss the movement of certain animals as similar to dance. Movement of a bird in flight, a cat.

e. Nature seen in literature.
(1) Introduce poems about nature to the class. Authors such as Langston Hughes,Robert Frost,Stephen Vincent Binet.
(2) Have students form class anthology of their own nature poems or their favorites by other authors.
(3) Expose the class to current paperbacks dealing with the environment. Make a tree of book reports each leave holding the title,author and a provocative sentence.
(4) Creative writing about nature.
(5) Class debates based on problems in nature and their possible solutions.

4. What I see as beautiful in nature. What do you as an individual see, hear, smell, taste and touch in the environment that is beautiful ? How can you as an individual make your environment more beautiful?

II. The Environment is a Supplier.
A. Every environment supplies some basic needs to organisms within that environment.
1. Identify basic needs supplied by your environment.
2. Choose a plant or animal in your community and explore how the environment satisfies its needs.
3. How do you obtain your basic needs from your environment?
a. Securing needs directly such as air.
b. Securing needs indirectly such as store bought food.

B. Different environments supply different requirements.
1. Requirements supplied by the city.
2. Requirements supplied within a farming community.
3. Requirements supplied within an ocean community.
a. If marooned on a desert island somewhere in the Pacific Ocean what could the environment supply that would maintain your existance ?
b. What would be the advantages and disadvantages of an ocean community ?
c. What requirements are fulfilled for you by living close to an ocean community ?

C. Living things interact with their environment.
1. Investigate the food chain, nitrogen cycle.
2. Divide class into groups, each given a pack of cards. Cards would be divided into environments, animals, vegetation eaten by animals and a group including predators. One group would hold up a card and the remaining groups would have to find a card that would interact with it.
3. Discuss how some living things use matter from their environment and return it. Investigate the bee.

III. The environment is in constant change.
A. Factors that promote environmental changes.
1. Changes caused by physical forces.
a. Movement of the earth in the solar system.
b. Earthquakes, erosion, drought.
c. Discuss various changes of the global environment since the origin of the earth. Ice age, Age of dinosaurs.
2. Changes caused by fluctuating social values.
a. Technical advancement of man.
b. Cultural advancements or changes in man in reference to housing, recreation and the arts.
c. Discuss changes the students can identify such as fashions, car models, songs, TV shows.
3. Changes directly related to the organisms in the environment.
a. Overpopulation of plants and animals.
b. The respect or lack of respect for the environment.
c. The extension or extinction of the life cycles of certain organisms.
B. Maintaining balance is important in change.
1. Stress the concept that all life is important in nature.
a. Career awareness in nature. Everyone recognizes occupations such as a teacher or a doctor and can easily sum up their function. Give students names of plants and animals in nature and tell them they also have occupations. Assign each student to identify an occupation for their organism. Such as an onion's occupation is to make people cry.
b. Is hunting cruel or a necessity for maintaining balance ? Research local game laws. Why are we able to hunt deer in N.J.?
2. What can happen when there is an imbalance? Research what happened when the starling was introduced into New Jersey or when the rabbit was introduced into Australia. What would happen if the population of your class tripled?
C. Obtaining resources alters the environment.
1. Agricultural resources.
a. Changes in the soil.
(1) Changes caused by overuse.
(2) Changes caused by fertilizing. What are the effects on man?
(3) Changes caused by irrigation of sea water leaving large mineral deposits of salt.
b. Changes in the plant life.
(1) Improving the seeds of nature through experimentation.
(2) Hybrids.

2. Obtaining energy resources.
   a. Pumping for fuel.
   b. Mining minerals used for energy.
   c. Electricity,sources and uses.
   d. How has the use of resources changed with the evolution of man. Discuss energy replacements for the home fifty and one hundred years ago.
3. Depletion of resources.
   a. Reasons for finite supply.
   b. What world problems will diminishing resources cause ? What kind of changes will it cause in your life style?
   c. Alternate resources of the future.
      (1) Geothermal energy.
      (2) Solar energy.
         (a) Discuss the natural process of photosynthesis by plants as an example of solar energy use.
         (b) Solar energy is a free resource. Why then, don't we utilize it to a greater degree? Research high costs of solar units. To view a solar cell or receive information on solar energy contact Edmund Scientific Company,300 Edscarp Building,Barrington, N.J. 08007.
      (3) Solid waste disposal as an energy source. Some wastes can be converted to synthetic fuels.
      (4) Nuclear energy.
         (a) Threat to man.Radiation and atomic wastes.
         (b) Constructive uses of atomic power. Atomic clock, nuclear powered submarines,changing salt water to fresh water,cancer treatment,radioisotopes for science research.
         (c) Destructive uses of nuclear energy. Hydrogen bomb, warheads for missles,depth charges, torpedoes,aerial bombs.
         (d) How can radiation alter organisms? Order radiated seeds from Oak Ridge Atom Industries, Oak Ridge Tennessee and plant along side normal seeds. Evaluate and discuss results.

D. Man's advancements cause change in the environment.
   1. Urbanization of the land.
   2. Overpopulation of man or concentration of population.
   3. Pollution caused by man.
   4. The horror of war,a catastrophic effect on nature.

E. Protecting the environment from drastic change.
   1. Government departments concerned with the environment.
   2. Privately formed groups of concerned citizens.
   3. The individual's responsibility to nature.

F. Man's changing view of the environment.
   1. Spiritual or mythical view of the past. The Indians,Romans and Greeks.
   2. The environment as a 'frontier' or an area of exploration.
   3. The environment as something to be used to supply man's needs whatever the cost to the environment.
   4. The environment as a necessary part of our life. A valuable resource that must be protected and conserved.

IV. The environmental conscience.

A. Acceptance of man's responsibility for the unnatural changes in the environment. Urban centers,plastics,climate control, freeways,pollution.

B. Man's physical health and survival is dependent on the health and survival of his environment.

C. Recognize that you are interdependent with the environment.

D. Try to encourage an attitude that respects the beauty of nature. Discuss with the students what respect means to them and how it can apply to nature.

Extending the Concept:

1. Plant seeds or raise classroom pets to determine needs of living organisms.

2. Select as a class project the improvement of the class atmosphere and class environment. Include arrangement of furniture, decorations,conduct of class and teaching techniques.

3. Use a local travel agent as a resource and obtain travel guides of various places. Compare the environments in the brochures. Do further research in school library.

4. Imagine what you would eat,wear,do,etc., if you lived in an Eskimo community. Build a stage setting of an Eskimo community and play act living in the created environment.

5. Acquaint your students with jobs not seen in their environment. Use posters,library books to stimulate interest. Give each student a choice of unknown occupations;discuss means of finding information on them and allow students to create an album of unknown occupations.

6. Use America the Raped, Gene Marine, Avon Books,1969 as a resource for in depth discussion of topics.
Example of Topics: N.J. Great Swamp area still substantially is as it was 3000 years ago when glaciers retreated from N.J. Discuss the proposals by engineers of Port of N.Y. Authority to replace this with a jetport. An urban area of one million people produces 500,000 tons of sewage a day. What kind of problems can this cause? Are there any present plans to deal with this?

7. The population density of New Jersey is about 833 people per square mile. What does this mean and how does it affect you as a resident of this state?

8. What is clay? Arrange a visit to a local stream and go on a natural clay hunt. Bring clay back to clay for modeling.

9. Collect weeds from community,dry out and make centerpieces.

10. Early man made paints from nature. Have class make natural paints from plants, berries or muddy water. Create a display of 'natural art' in your school.

11. Make your own rocks. Combine one half cup of plaster of paris, one cup of sand and one cup of water. Stir and shape into an original design allow time to harden.

12. Exploring a new environment by a 'Treasure Hunt'. A few days prior to the planned activity scout out a location close to the school but not one already visited, design a map for your students. On the day of your hunt go and bury the chosen treasure and leave clues.

13. What is 'Graffiti', a form of writing, a form of destroying the environment? Create a graffiti board in your class by covering a large section of a wall with a sheet. Allow students to write on this during their spare time.

14. Use your wastes to plant a garden in class. Collect apple seeds, peach pits; refrigerate six weeks then plant. Collect grapefruit seeds, orange and lemon seeds and soak overnight and plant. Grow an onion or avocado pit by placing it in a jar filled halfway with water.

15. Halloween plants. Spark new interest in plants by introducing A Witches Guide to Gardening, Dorothy Jacob, Japlinger Publishing Company, N.Y., 1965.

16. Find out about other interesting environments through contact with the inhabitants. Provide pen pals for your students free of charge. English Speaking Union, Pen Friends, 16 East 69th. Street, New York, N.Y. 10021 or contact your local Red Cross Chapter and ask about their 'School to School Program'.

17. Ask your students what is the most perfect food that nature supplies throughout the world ? Discuss their choices then distribute the pamphlet 'Grass' available from the USDA, Washington, DC 20250. Some groups have suggested grass as the national flower if your class agrees with them have them write their Congressman stating their request.

18. Have students create a classroom zoo of extinct animals. Construct paper mache animals each with an information card stating sone basic facts. Invite other classes.

19. Have a 'taste party'. Each individual's tastes vary and most people view their choices as the best. Allow each student to bring in a small portion of his favorite food. Have students tell about their food and allow everyone to taste.

20. Improve the environmental conscience of your community. Have students compose, illustrate and assemble booklet on 'What you can do to help the environment'. Distribute at school function such as PTA.

Instructional Materials:

Films: Available from Irvington Public Library for rental.[50]

Noisy Landscape,13min.,Color
Bulldozed America,28min.,Black &White
Bear and the Hunter,11 min.,Black&White
Great Swamp,25min.,Color
For Land's Sake,15min.,Color
Come Paint and Photograph Us,27 min.,Color
Paint,25 min.,Color
Blessing on the Woods,11min.,Color
World in a Marsh,22min.,Color
Car is Born,27min.,Color
Window on the World,17min.,Color

Films: Available from East Orange Public Library for rental.[51]

This is New Jersey,30 min.,Color
The Sea,27min.,Color
Paddle to the Sea,28min.,Color
Rabbit Hill,53min.,Color
Squeak the Squirrel,10min.,Color
New York,New York,15min.,Color
Searching Eye,18 min.,Color
Nutcracker,60min., Color
Heavenly Star,13 min.,Color

Materials:

FREE SEED CATALOGUE
Wayside Gardens Company,Mentor,Ohio 44060.
Meadowbrook Herb Gardens,Wyoming,Rhode Island 02898.

NATIONAL HUMANE JUNIOR NEWS
American Humane Association,P.O. Box 1266,Denver,Colorado 80201.

EVERYDAY ART
American Crayon Company,Eastern Office,P.O.Box 147,Jersey City,N.J. 07303.

CLASSROOM VISUAL AIDS,REPRODUCTIONS AND PUBLICATIONS
Extension Service,National Gallery of Art,Washington,DC 20565.

PICTURES:AMERICA THE BEAUTIFUL
Superintendant of Documents, Government Printing Office, Washington,DC 20402.

LET'S LEARN ABOUT THE FOREST, STUDENT PACKAGE ON TREES
Weyerhaeuser Company,Tacoma,Washington 98401.

AMERICAN FORESTS
American Forest Institute,1619 Massachusetts Ave.,Washington,DC20036.

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[50] **Free 16mm. Films.**

[51] **Films 1977.**

ZPG NATIONAL REPORTER: EQUILIBRIUM
Zero Population Growth, 4080 Fabian Way, Palo Alto, California 94303.

MATERIAL FOR CLASSROOM USE ON GLOBAL ENVIRONMENT
Center for War/Peace Studies, 218 East Eightffnth Street,
New York, N.Y. 10003.

DO-IT-YOURSELF ECOLOGY: ENVIRONMENTAL ACTION
Environmental Action, Room 731, 1346 Connecticut Avenue,
N.W., Washington, DC 20036.

GREEN SURVIVAL
American Association of Nurserymen, 230 Southern Building,
Washington, DC 20005.

NATURAL GAS-SCIENCE BEHIND YOUR BURNER: STORY OF NATURAL GAS:
FUEL CELL: NATURAL GAS SERVES OUR COMMUNITY KIT
American Gas Association, Education Services, 1515 Wilson
Boulevard, Arlington, Virginia 22209.

ON CITY STREETS(75¢)
An Anthology of Poetry, Selected by Nancy Larrick, Bantam Books,
New York, 1968.

SCIENCE EXPERIMENTS YOU CAN EAT
Vicki Cobb, JB Lippincott Company, New York, 1972.

THE GIVING TREE
Shel Silverstein, Harper and Row Publishing, New York, 1964.

Trips:

Port of Authority Tour, Port Newark & Newark Airport.
(589-7100) (624-7900)

General Motors Assembly Plant, Linden, N.J. (486-6700).

Staten Island Zoo, Clove Road, Staten Island, N.Y. (212-442-3100)
Side trip to Verrazano bridge.

American Museum of Natural History, Central Park West, N.Y.
(212-873-4225).

Metropolitan Museum of Art, 5th. and 82nd. Streets, N.Y.
(212-879-5500 Extension 308).

Hayden Planetarium, 81st. Street, New York (212-873-8828).

U.S.S Ling Tour, W.W.II Submarine, Borg Park Dock, 150 River
Street, Hackensack, N.J. (Open 10 to 6, free).

Edison National Historic Site, Main Street, West Orange,
(201-736-5050).

Electric Generating Station,John Dillon,Environmental Affairs, Room 8317,80 Park Place, Newark,N.J.(430-5862)

Montclair Art Museum,P.O. Box X,Montclair,N.J. 07042. (746-5555)

Programs:

PSE & Gas will present a series of programs upon request. Our Friend the Atom,Energy 2000, New Jersey -Camera Close-Ups, (430-5872).

New Jersey-Know Your State,Laser, Color Comes Calling, Research-Gateway to Tomorrow, these programs can all be arranged through contact with your local Bell Telephone Business Office.

Contact the Director of Fish,Game and Shellfisheries, Department of Environmental Protection,Labor and Industry Building,Box 1390,Trenton,N.J. 08625 to arrange fora speaker on New Jersey wildlife.

Contact Turtleback Zoo to acquire loan of educational packets for classroom use.

PROBLEMS IN THE ENVIRONMENT

Concept: The natural environment is plagued with an assortment of complex problems which have an affect on all living things.

Purpose: To help the student achieve an awareness of the existing problems in the environment. To aid the student in recognizing his contributions to these problems and how they can begin to be remedied.

Development of Problems in the Environment:

I. The natural environment is disrupted by problems.
   A. Population problems.
      1. What effect would overcrowding have on a species in a given environment ? They might migrate, become cannibalistic, reduce the number of offspring produced or starve.
      2. As the population increases the land area remains static. The space we occupy must be viewed as a resource in need of protection. Each individual can contribute by making his property clean and efficient. Have students begin with their desks, lockers and home.
      3. Is there a relationship between the increase in heart disease, ulcers and other stress diseases in a very crowded area ?
      4. Investigate work done by Albert Einstein Medical Institute, Philadelphia, Pennsylvania with overpopulation. They have found that endocrine feedback mechanisms exist in mammals that is, an internal mechanism is triggered by overpopulation which can regulate population growth such as delayed sexual maturation, increase in fetus deaths, etc.
   B. Waste Disposal, getting rid of pollutants.
      1. Using the land to bury wastes. Where does your town bury wastes?
         a. Name the various types of solid waste and their sources.
         b. What is the effect on the soil?
         c. The production of wastes is faster than the availability of land to dispose of it. In highly populated areas waste is estimated at eighty pounds per day per person.
         d. Have students contact Department of Public Works in Irvington (372-2100) find out the amount of garbage the town produces and where it is dumped. Contact the Newark dump and find out their procedures.
      2. The air as a recipient of pollutants.
         a. Source of pollutants.
            (1) Transportation.
            (2) Industrial pollution.
         b. Effects on the atmosphere.
      3. Pollutants in the water.
         a. Sources of water pollution.
            (1) Sewage.
            (2) Industrial pollution.

(a) Chemical pollutants.Toxic wastes,pesticides.
(b) Thermal pollution.

(3) Inert Wastes. Suffocating plant life and having a chain reaction on all life.
(a) Silt.
(b) Oil.

(4) Burial of radioactive material in rivers and streams so they remain cooled.
(a) Material from processing uranium.
(b) Testing of thermonuclear devices.
(c) Contact PSE&Gas company to reserve film "Atlantic Generating Station" a film about a proposed nuclear power plant for the 1980's in the Atlantic Ocean. Discuss the possibilities of ship collision or hurricane.

C. Noise pollution.
1. What type of effects do loud noises have on you? Discuss how the students feel when an alarm sounds.
2. Can exposure to constant noise have an effect on hearing?
3. Take a trip to an airport and allow students to comment on noise. Would they like to live close to an airport?
4. Make a listing of jobs that require some protection from loud noises.

II. Problems in the natural environment have effects on the environment and its members.
A. Effects on the environment.
1. Loss of valuable plants and animals.
2. Damage to the natural resource supply.
3. Permanent damage to the land and water supplies.

B. Effects on man.
1. Economic consequences.Everyone eventually ends up paying for the cleaning of the environment. (U.S. spends over twelve billion per year)
2. Psychological aspects.
a. Depression caused by unsightly factors in the environment. How do you feel when you see garbage all over the street.
b. Discomfort caused by overcrowding and pollution.
3. Social aspects. Discuss the occassional problem seen at New Jersey beaches during the summer when bathers are asked not to go into the water because of pollutants.
4. Physical effects.
a. Contact American Cancer Society. The incidence of cancer of the lung is twice as high in cities than in rural areas.
b. People living in heavily polluted areas are more susceptable to colds,pneumonia,asthma and emphysema.
c. Exposure to carbon monoxide,emitted from cars, can cause headaches,dizziness and blurred vision.
d. Sewage in the water can cause hepatitus or typhoid.
e. Exposed dumping areas can become rodent infested.Rodents can spread disease to man.
f. On smoggy days people are warned to avoid over exertion and deep breathing .Find out why and how the weather services determine if the air is healthy.

III. Energy problems in the environment.
A. Sources of energy.
1. Fossil fuels. Discuss shortages and finite supply.
2. Solar power. Expensive but non polluting.
3. Electricity. New methods of production.
4. Nuclear Energy. Exposure dangers and disposal of wastes.
B. Consumers of energy.
1. Industry. Explore industry in community and source of energy.
2. Transportation.What will transportation of the future be like?
3. Utilities in the home.
4. Individual consumption. Make a daily diary by the students of every time during a day they consume energy. Discuss how many of the things in their diary would be impossible without energy.

IV. Solving our energy problems.
A. Help students see that in a very real sense conservation includes not only plant,animal,mineral and energy resources but also human resources.
1. Practice good health and safety habits.
2. How much are you worth as a resource? Have students find out the value of the chemical elements within their body. What is the real worth of a person? In today's market the chemical elements of our body is worth about $1.49.
3. What are human resources?Healthy body,mind,human potential, special talents of people.
4. Help the students learn about themselves and their environment.
B. Conservation should be concerned with both correction and prevention of environmental problems.
1. Determine your individual part in polluting the environment.
2. What can you do to become a wiser user of the natural resources rather than a waster.
3. Have your students plan a campaign in their community to help correct at least one problem that they have identified.
C. Pollution Legislation.
1. Environmental Protection Agency. Combination of many agencies which set the standards in areas of pollution. Have students investigate use of phosphates,DDT and leaded gasoline in their community. These have been banned in some areas.Encourage students to take action if used in their community.
2. State's role in pollution control. State legislation.How does your state compare with others in regard to this type of legislation.
3. Your community's role in pollution prevention. Does your town conduct a regular check of suspected polluters? Are there any recycling centers?
4. Encourage students to be looking out for sources of pollution. Discuss how they can become part of the legislation process.

Extending the Concept:

1. New Jersey is a very densely populated state. Eighty percent of the entire population live on two percent of the land. Discuss the problems this can cause. How would our state be different if the population was half this amount ,twice the amount?

2. Is something that is good for you always good for the entire environment? Introduce a global conscience by discussing the use of DDT first introduced as a pesticide to control insects but resulted in deaths of insect eating birds,eagles,penguins and even a threat to man. Presence of DDT in human milk is four to six times the safe limit. If packaged in containers it would not be able to pass state lines.

3. What is plankton? Does our survival depend on the survival of plankton? What is being done to protect this producer of oxygen from pollution? Write to Water Pollution Control Federation,3900 Wisconsin Avenue,NW,Washington,DC 20016 for current information.

4. Make a collection of photographs ,either original or from a magazine, showing the need for environmental controls.

5. Write poems ,limericks or riddles on pollution.

6. Have a representative of your class write to the Irvington Herald or town health officials pointing out ways the community can improve conditions or ci ing a condition that needs immediate control.

7. To develop an understanding of the effect of loud noise saturate the classroom with noise during a time your students have a task to do that requires concentration. Discuss their reactions.

8. Use a tape recorder to record noise pollution found around the school. What noises are necessary? Which noises can be toned down? What noises can be eliminated?

9. Form a 'Student Pollution Control Team' that is responsible for evaluating the class and school environment. Have them decorate trash cans,make posters, make announcements over the PA to improve the awareness of the school.

10. Have students find out how many satellites are now in orbit. Will these be a pollution problem in the future?

11. Collect automobile exhaust in a jar. Cover and put the jar next to a jar that has classroom air. Make comparisons.

12. Where does your garbage go? Arrange for students to follow the trail of the classroom garbage where does it go when it leaves the classroom? What goes into the incinerator ? Is the school a polluter?

13. Read Silent Spring,Rachel Carson,Houghton Mifflin,Boston,1962, to the class.Are we poisoning curselves and the animals?

14. Organize an anti-litter campaign in your school by obtaining steel drums and pails. Have the class decorate them and place them around the school grounds. Contact Steel Shipping Container Institute, 2204 Morris Avenue,Union,N.J. 07083.

15. The most discarded material is paper.Paper can be recycled easily. Plan a recycling session in your class. Collect and tear up collected newspapers. Place in water,beat until pulp begins to separate from solid mass. Remove solid mass and add two tablespoons of wallpaper paste to a pint of water and add to pulp. Add coloring ,strain and allow to dry.

16. Litter scavenger hunt. Give students a list of litter usually seen around the schoolyard. This activity is fun and it cleans up the yard also.

17. Aluminum collection. Have students organize a school aluminum can collection.Contact American Can Company for recycling details.

18. Have your students identify one problem existing in your school that is important. Make use of advertising ,role playing, lobbying techniques, soliciting outside support to solve it.

19. Recycle old wine bottles into vases.Wash and remove labels. Cover bottle with torn pieces of masking tape so no part of the glass shows through. Coat with brown shoe polish to give it an antique lustre.

Instructional Materials:

Films: Available from Irvington Public Library for rental.[52]

Seashore,8min.,Color
We've Got a Lot of Work to do,11 min.,Color
Little Man,Big City,10min.,Color
1985,58min.,Color
Ecology Probe,10min.,Color
Junkdump,15min.,Color
And So Ends,25min.,Color
Get Wet,10min.,Color
Atonement,52min.,Color
Energy:New Sources,20min.,Color
Air,Water and Industry,27min.,Color
How to Make a Dirty River,23 min.,Color
Rivers Must Live,21min.,Color
A Question of Values,28min.,Color
Pollution,2min.,Color
Automania,10 min.,Color
Endless Chain,28 min.,Color

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[52] **Free 16mm. Films.**

Films: Available from East Orange Public Library for rental.

Water,14 min.,Color
Redwoods,20min.,Color
Study in Wet,7min.,Color
Is the Fox Really Sly?,21min.,Color
Lorax,25min.,Color
Windy Day,12 min.,Color
Pond and the City,16min.,Color
Boomsville,11min.,Color

Materials:

OUR POLLUTED WORLD
American Education Publications,Educational Center,Columbus Ohio,43216.

SOLID WASTE MANAGEMENT:AVAILABLE INFORMATION MATERIALS
U.S. Government Printing Office,U.S. Environmental Protection Agency,Washington,DC.

JOHNNY HORIZON ACTION BOOKLET,INFORMATION SHEETS
Johnny Horizon,Washington,DC 20240.

LIVING WITH ENERGY:THE ENERGY CRISIS(guides,spirit masters)
Standard Oil Company,Mail Code 3705,P.O.Box 5910-A,
Chicago,Illinois 60680.

ENERGY CRISIS:TEACHERS RESOURCE GUIDE:ENERGY-TRANSPORTATION
N.J.Education Association,180 State Street,Trenton,N.J.

AN OUTLINE TO TEACHING CONSERVATION INELEMENTARY SCHOOLS;
TEACHING SOIL AND WATER CONSERVATION;FILMSTRIPS
U.S.Department of Agriculture,Soil Conservation Service,
Washington,DC.

CLEAN WATER,IT'S UP TO YOU
Isaak Walton League of America,1800 North Kent Street,Suite 806,
Arlington,Virginia 22209.

ECO-TIPS
Concern Incorporated,22330 Wisconsin Avenue,NW,Washington,
DC 20007.

TRASH IS CASH
Environmental Action Coalition,235 East 49th.Street,New York,
N.Y. 10017.

NEEDED:CLEAN AIR
Channing L.Bete Company,Box112,Greenfield,Mass.01301.

WHAT TO DO IN NEW JERSEY(2.75)
Division of What to Do,County Publications,Inc.,Box 207,
Mantoloking,N.J. 08738.

McDONALD'S ECOLOGY ACTION PACK
McDonald's Corporation,McDonald's Plaza,Oak Brook,Illinois 60521.

POLLUTION:A HANDBOOK FOR TEACHERS ($1.00)
Scholastic Book Services,904 Sylvan Avenue,Englewood Cliffs,
N.J.07632.

CLEANER AIR(class quanity)
Research Products,1015 Washington Avenue,Madison,Wisconsin 53701.

LEAD AND ZINC IN THE ENVIRONMENT(class quanity)
Lead Industry,292 Madison Avenue,New York,N.Y.10016.

HOW YOU CAN MAKE PAPER
American Paper Institute,260 Madison Avenue,New York,N.Y.10016.

ENVIRONMENTAL MATERIALS
The Science Man,4738N.Harlem,Harwood Heights,Illinois,60656.

Trips:

Tour of the Hackensack 'Record' a printing and publishing facility of a large N.J. newspaper. The Record,150 River Street, Hackensack,N.J.07601.(646-4380)

Water from raindrop to the consumer. Tour,lecture and booklet. Hackensack Water Company,Lake Shore Drive,Haworth.(487-0011)

Tour of Naval Base. Weather Station,blimp hangars,parachute school.Naval Air Station,Lakehurst.(323-620)

Newark Airport.Enter planes,tour.
Newark Airport,Route 1, N.J. (344-8200)

Seven-Up Bottling Company,300 West Fourth Street,Plainfield,N.J. (756-6300). Fully automated soft drink bottling process.

Picatinny Arsenal,Dover,N.J. 07801. (328-3212)

E.R.Squibb & Sons, Georges Road,New Brunswick,N.J. 08903.
Tour of facilities.(921-4661)

Esso Research Center,Route 1,Linden,N.J. (474-2705)

ENVIRONMENT AND HEALTH

Concept: Maintenarce of a healthy mind and body is important as a member of the environment.

Purpose: To broaden the student's knowledge about his personal health and how his environment can influence his health.

Development of Environment and Health:

I. Social Health.
   A. What is social health ? Maintenance of your body so that it is unoffensive to others. Ask your students to imagine themselves on a crowded bus on a hot summer day and they are ill-at-ease. Accept their thoughts on this situation.
   B. Obtaining good social health habits.
      1. Keeping your body clean.Washing,brushing teeth,cleaning hair.
      2. Clean clothing.
      3. Use of hygiene products for protection.Deodorant,mouthwash.
   C. Discuss what you can do when someone you know does not practice good social health.
   D. Are manners a part of social health ? How can someone's bad table manners affect others ?

II. Mental Health.
   A. What is mental health ? Write to National Association for Mental Health,10 Columbus Circle,New York,N.Y. 10019, to ask for free pamphlets on mental health.
      1. Am I comfortable with myself ? Self Respect. Can I handle a disappointment ? Do I try to understand my feelings?
      2. Am I able to get along with others ? Do I try to understand the feelings of other people ?
      3. Am I able to meet the demands of life? Do I accept responsibility? Do I do what I really believe in ?
   B. Improving your mental health.
      1. Have students write a paragraph on "Once I made a mistake when.....". Stress no names. Read some and discuss how to deal with some of the problems mentioned.
      2. When I get angry I.....Role play for your students and pretend you are angry. During the role playing session do something that is not characteristic of you. Discuss how the students view your anger. What are some of the different ways of getting angry ? What are some types of expressions of anger we should avoid ?
      3. Discuss common needs. Feel wanted,companionship,to be successful.
      4. Discuss common feelings. Fear,love,hate,embarrassment,hurt.
      5. What are values ?
      6. Understanding differences. Sensitivity to others' feelings.
      7. Have a period each week during class time to air out feelings that have been building up in class all week,include both students and teachers. Discuss.
      8. Make a feelings box in the class so the students can write down a note that describes a feeling that perhaps they were reluctant to make verbal.Stress the anonymous nature of such a box.

III. Physical Health.

A. Health examinations. Discuss with students the advantages and necessities of health examinations. How can your doctor help you ? Contact Irvington General Hospital(375-4600),Public Relations Department and arrange for someone on staff to come and talk with students about the importance of health examinations.

B. Nutrition.
1. What is good nutrition ? What is a proper diet?
2. Are vitamins necessary to our diet ?
3. Benefits of a good diet.

C. How does alcohol affect the body ?
1. Alcohol is a depressant. What does this mean ?
2. Affects on the brain,nerves,stomach lining,self control.
3. Alcoholism.

D. What does research tell us about smoking?
1. Smoking is a contributor to cancer.
2. What happens within the body when you smoke ?
3. Reasons people smoke.
4. Should smoking be allowed in public places ?

E. Drugs and your health.
1. Drugs that are important for our health. Penicillin.
2. Drugs that are abused. Narcotics,hallucinogens,etc.
3. What affects do drugs have on the body ?
4. Addiction.

F. Communicable Diseases.
1. What is a communicable disease? How do germs spread?
2. Protection against disease.
3. Invite school nurse to class to explain the immunizations that all the students have already received and why?

G. Cancer,Heart Disease. Make students aware of these health problems of the present. Discuss possible cures of the future.

IV. Health Around Us.

A. Importance of pure water for drinking. How is our water purified? Where is Irvington's water stored ?
1. Are you really drinking pure water ? Have students look at tap water under the microscope, compare to store bought spring water.
2. What is added to improve the taste and smell of your drinking water?

B. The treatment of sewage is important to our health.
1. Does Irvington use primary or secondary sewage treatment? What is the difference between these methods ?
2. Does your community use sludge?
3. Discuss the functions of sewers. Can your students locate the sewers in their school community?

C. Importance of clean air to our health.

D. Avoidance of Food Pollution.
1. How can foods become polluted?
2. Protection against food pollution. Food and Drug Department.
3. Discuss how you and your family protect your food from spoilage.
4. Research on food to see the affects on man. What kind of an affect does Coke have on you with it's caffeine content? Discuss the importance of government studies on food presently on the market such as diet foods.

Extending the Concept:

1. Make a flow chart of your favorite food. Trace the food back to it's origin. An example would be a hamburger traced from a type of food eaten back to the slaughter house, the steer, the grain, etc.

2. Plan a nutritional breakfast or lunch with your students. Take these plans and transform them into an actual meal planned, prepared and eaten by your students.

3. Discuss the importance of physical fitness for your health. Plan a few exercises you and your class can do every morning.

4. What happens during a health check-up ? Invite the school nurse to class and allow the students to learn first hand what happens. Find out the function of the school nurse.

5. Have students explore the practices long ago to ward off diseases.

6. Do your students know what they are immunized against ? Prepare a little medical chart and distribute to the class. Have students acquire the information from their parents, doctor or school nurse. Discuss the findings.

7. Contact local hospital for use of X-rays that were defective. Show students and discuss the process.

8. Contact Irvington Mental Health Clinic. Arrange for a speaker to discuss what a mental health clinic is and how they might be of service to the students or their family, now or in the future.

9. Arrange a Mother-daughter or Father-son night with the cooperation of the school nurse. Discuss the changes, problems and questions surrounding puberty.

Instructional Materials:

Films: Available from Irvington Public Library for rental.[53]

Drugs and the Nervous System, 16min., Color
Story of Dr. Lister, 28min., Color

Films: Available from East Orange Public Library for rental.[54]

First Aid Now, 26 min., Color
Hunger in America, 54 min., Color
Smoking and You, 13 min., Color
Gymnastic Flashbacks, 10 min., Color

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[53] Free 16mm. Films.

[54] Films 1977.

Films:

Alcohol and the Human Body,14min.,Color
Encyclopedia Brittanica,425 North Michigan Avenue,Chicago,Illinois 60611.

Smoking and You,11 min.,Color
Indiana University,A-V Center,Bloomington,Indiana.

Hooked; Narcotics; Why Not; Seekers
Narcotic Addiction Control Commission,Executive Park South,
Albany,N.Y. 12203.

I'll Choose the High Road; Huffless Puffless Dragon
Available upon request at your local American Heart Association.

Materials:

YOUNG PEOPLE WHO SMOKE;WHY NICK THE CIGARETTE IS NOBODYS FRIEND
U.S. Department of Health,Education and Welfare,Children's
Bureau, Public Distribution Section,Room G024,HEW S,330 C Street,
Washington,DC 20201.

CATALOG ON ENVIRONMENTAL EDUCATION AND HEALTH
American Association for Health, Physical Education and
Recreation,1201 Sixteenth Street, NW,Washington,DC 20036.

CATALOG OF FREE MATERIALS
American Lung Association,15 East 26th. Street,New York,N.Y.10010.

FILMS AND A.M.A. PUBLICATION CATALOG
American Medical Association,535 North Dearborn Street,
Chicago, Illinois,60610.

THE NATIONS HEALTH
American Public Health Association, 1015 Eighteenth Street,
Washington,DC 20036.

GETTING IT TOGETHER; THE GOOD LOOK (class quantity)
Johnson and Johnson, Consumer Services, New Brunswick,
N.J. 08903.

PUT MUNCH IN THEIR MENU; ELEMENTARY HEALTH GUIDE (request on school paper)
Inter Harvest, P.O. Box 2115, Salinas, California,93901.

WHEN YOU GO TO THE DOCTOR
U.S. Department of Health,Education and Welfare, Social Services,
Room G-115-B, Mary E.Switzer Building, 330 C Street, SW,
Washington,DC 20201.

Trips:

Tour of Nabisco. See forty types of cookies and crackers in the making. Route 208,Fairlawn.(797-6800)

Hershey's Chocolate World,Ride through the simulated world of chocolate. Hershey,Pennsylvania.(717-534-4900)Free Admission to 'Zoo America'.

EXPANDED DESIGN FOR THE COMMUNITY IN WHICH I LIVE,IRVINGTON,NEW JERSEY

Concept: The community in which the individual lives is rich in historic facts. These annals have influenced the present community.

Purpose: This fractional part of the outline is presented to the reader to acquaint him with historic facts about the community. The author has established a foundation which can enhance the pride of the community and it's rich heritage.

Development of the Expanded Design for the Community in Which I Live, Irvington,New Jersey

I. Origin of the community called Irvington.
   A. Irvington was part of a magnificent wilderness homing a group of Lenni Lenape Indians, also called the Hackensack indians. In 1666, white settlers purchased a package of land from this tribe. The land purchased was then called Newark Township, known today as Essex County of which Irvington is a fragment. The cost of this property was an assortment of coats,guns,breeches,pistols,swords,blankets,axes and gunpowder which had an estimated worth of $750. In May of 1675 this land was sectioned off into farms of twenty to forty acres each. Irvington's position, near both Newark and New York, attracted many of the early settlers who were in search of a more suburban setting, yet there is no exact date of settlement.[55]

      During the division of land in 1675 Irvington received its first name, "West Farms". The name changed when a prominent family named Camp settled in this area, it was then known as "Camp Farms" and later changed to "Camptown." The final change was in 1852. The people of the town, in order to honor the author Washington Irving, changed the name to Irvington.

   B. Early inhabitants of Irvington. Those people that lived in what now is known as Irvington are classified as original inhabitants and early settlers.
      1. The Indians known as the Lenni Lenape tribe or Hackensack Indians inhabited this area. They were a peaceful tribe which abandoned the area as white settlers moved in.
         a. They could be easily be identified by copper-colored skin. Women wore braids.Men wore scalp locks shaved at the sides.

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[55] Henry F. Skirbst, "In the Cause of Freedom:Irvington,New Jersey in the American Revolution"(Published as a Bicentennial Project by the Irvington Historical Society,Irvington,New Jersey,1976),pp5-9.

b. Clothing consisted of deer, rabbit and squirrel skins which were ornamented with feathers and beads.
c. These indians relied on gardens to provide corn, beans, pumpkins and squash . They hunted for native bear, deer and elk. Fished for shad, haddock, perch, trout, eels, catfish and sunfish. They also visited the Jersey shore for shellfish. No cooking utensils were used. Food was cooked in hot ashes or on hot stones.
d. Lenni Lenapes lived in villages. Each family constructed a ten foot circular home of wood with an opening in the roof for ventilation.[56]

2. Early Settlers emigrating to Irvington.
a. Ancient records indicate that John Brown purchased land in the Irvington area in 1673. By the year 1692 much of the land in Irvington was settled by Newark families expanding their domain. The most noted family of this era was of Samuel Camp, a barrelmaker, who lived in a stone house near the present location of Clinton Avenue and Ball Street.[57]
b. The arrival of the settlers began the change that is still affecting Irvington, that is industrialization.

C. Life in Early Irvington.
1. The location of Irvington was essential in securing her role in industry. Irvington was a mail stage run for the three day trip from Philadelphia to New York. Although many of the early residents were farmers there was a need for industry.
a. Irvington was famous for the manufacturing of 'Jersey Lightening', an alcoholic beverage of cidar and apple jack. This maiden industry was dependent on the nearby orchards for the supply of raw materials.
b. Saw mills and grist mills abounded. On 'Vinegar Hill' which today is Clinton Avenue ;flat bottomed boats or cargo skiffs called 'Periagers' were built and rolled downhill on logs to the brook(near Irvington High School) that flowed to Newark Bay. Irvington was also known for it's crystal craftsmen and shoemaking at 35¢ a pair. Many of the other early settlers relied on logging and farming to make a living.[58]
2. Recreation in Colonial Irvington. The site where six lanes of the Garden State Parkway run through Irvington today was the scene of Irvington's cycle and horse races.

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[56] Dorothy Cross, "New Jersey Indians, Report No.1"(New Jersey State Museum; Trenton, New Jersey, 1976), pp.21-45.

[57] Skirbst, p.6.

[58] Skirbst, p.7.

3. Dependence on other towns.
   a. Need for trade. Even in colonial times Irvington was dependent on her close neighbor ,Newark for trade. Newark was the port that offered imported goods and foreign markets for Irvington's products.
   b. Communication through relay stations. Irvington was a relay station for the Philadelphia to New York route.

D. The Colonial Environment.
1. Plant and animal life. Irvington was a forest of wild animals with few indian trails prior to settlement. Towering oaks,green spruce, ash, hemlock,maple,elm,hickory, sweet gum trees abounded. Irvington was a wonderland of wild berries,,raspberries,currants,mulberries,persimmons, plums and apples. The forests of New Jersey in colonial times supplied a large quantity of game. Deer,elk,bear turkey,falcons,otter,raccoons,herons and rabbits roamed the area. The stream running through Irvington supplied early settlers with edible fish.[59]
2. The land at this time was rich and moist. Good for farming.
3. Population. Irvington was slow building up its population. By 1890 there were still less than 1000 residents in the town. Then a forty-year surge began as business flurished in nearby Newark and New York. This left Irvington with a population in 1930 of 56,000.[60]

Extending the Concept:

1. Recreate scene of Indians and settlers purchasing land in a one-act play.

2. Have students do a character sketch on Washington Irving. Read and discuss some of the stories of Irving such as Legend of Sleepy Hollow and Rip Van Winkle.

3. Display pictures of old Irvington available from Irvington Public Library(372-6400).

4. Explore how indians used animal skins for clothing. What was tanning ? Prior to the use of a skin for clothing it had to be soaked in lye;softened with animal fat;cleaned with oak bark; smoked over a fire and sometimes chewed to soften by the women. Compare to modern techniques of leather work today.

5. Have students research famous names in Irvington's history. Henry Hudson,Robert Treat,Joseph Camp,Sears Robers.

6. Find out Irvington's contribution to the revolution.

7. What are indians like today? Have students find out directly by contacting Reservation Children,American Friends,160 Wset 15th.Street,Philadelphia,Pennsylvania 19102.

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[59] Cross,p.22.

[60] Chamber of Commerce of Irvington,New Jersey,Irvington,New

8. Listen to Buffy Saint Marie singing "Now that the Buffalo's Gone" on It's My Way, Stereolab,VSD 79142, Vanguard Recording. Discuss feelings expressed.

9. Organize a day in the past at your school. Have faculty and students dress up in old costumes. Try to present lessons that reflect the past.

10. Copy the song "Camptown Races" for your students and teach them the tune. Discuss words compared to actual historic facts.

11. Try to collect feathers and have class make quill pens. Have a day in class where this is the only writing instrument.

12. 'Irvington's Heritage Cookbook'. Have students collect the favorite recipes of family,teachers and friends. Construct a book with illustrations done by students. Give away or charge a nominal fee.

13. Contact Mr.Alan Siegel, author of "Out of Our Past,A History of Irvington,New Jersey", through the Irvington Historical Society and discuss a possible visit to the class or some suggestions for introducing the history of Irvington into the curriculum. Also discuss his plans for the making of this text into a film. When will the film be complete? How can the school borrow it?

Instructional Materials:

INFORMATION ON HISTORIC SITES
Office of Tourism,Division of Economic Development,Department of Labor and Industry,P.O.Box 400,Trenton,New Jersey 08625. (609-292-2367)

IRVINGTON,NEW JERSEY
Chamber of Commerce,1007 Springfield Avenue,Irvington,N.J.07111.

NEW JERSEY AND THE REVOLUTION ($1.50)
Ms. E.K.Brainard,100 B Cedar Lane,Highland Park,New Jersey 08904.

NEW JERSEY INDIANS,REPORT NO.1 ($2.00)
This and many other publications are available through Trenton State Museum,205 West State Street,Trenton,New Jersey 08625.

Trips:

Contact International Crystal Laboratories,120 Coit Street, Irvington,New Jersey to see if tour or information is available on present glassworks in Irvington.

The Deserted Village,Old Mill. Self-Guided Tour. Booklet. Glenside Park, Union County Outdoor Education Center, New Jersey.

Sleepy Hollow Restorations,150 White Plains Road,P.O. Box245, Tarrytown,New York 10591. (914-631-8200)

Living History Center,Independence Mall, 6th. and Race Streets, Philadelphia, Pennsylvania 19106. (215-629-1976)

William Trent House, 539 South Warren Street, Trenton,New Jersey. (609-989-3027)

Moosedance Pond Institute, Linwood-MacDonald Environmental Education Center,RD 2 Box 268, Branchville,New Jersey 07826. Programs,workshops,lectures are available. (201-948-5522)

IMPLICATIONS FOR EDUCATION AND RECOMMENDATIONS

This curriculum guide has been formulated so teachers can help students understand their physical, social and cultural interaction with their environment. Examination of the units will reveal objectives, material lists, detailed procedures, discussion questions and specific suggestions for instruction.

Although the curriculum guide has an intended environmental theme, the practical application of the presented concepts can be incorporated into any sector of the curriculum. Teachers can adopt the guide in its entirety or abstract ideas.

The presentation of this curriculum guide is only one phase of a successful environmental program. To prevail it requires creative teachers who are willing to implement it into the curriculum, motivated students who are anxious to incorporate it into their lives and administrators who are willing to evaluate its success or failure.

The introduction of an environmental plan into a school curriculum must be preluded by a systematic plan that encourages change. The teachers must not only be equipped with a curriculum guide but in addition a teaching packet that includes ditto masters. In-service workshops should be a continuous part of the program in order to reinforce the positive aspects of the program and at the same time try to alleviate the existing problems.

SUGGESTIONS FOR FURTHER RESEARCH

The curriculum guide inevitably reflects the needs of students as they are recognized by the writer. These needs are

erratic; therefore, the instructor using this guide must be flexible enough to incorporate new ideas and critical enough to evaluate those concepts presented.

Environmental Education is still in an embryonic state. The instructor in environmental education must be aware of the constant research and growth in this field. The instructor also should be made aware of groups that are willing to subsidize or contribute aid to the implementation of environmental studies. The Office of Environmental Education, community service clubs and local industry at intervals accept proposals for environmental projects.

The author has presented an additional list of resources as a final supplement to the curriculum guide (see Appendices A and B).

Chapter 4

SUMMARY

Concern for the environment has been an imperishable human concept. The environmental concern has recently germinated into positive, effective and constructive action through Environmental Education.

Inclusion of Environmental Education Programs in the Elementary School Curriculum are recent innovations. But before effective environmental education programs can be developed, research is needed to: test the effectiveness of various approaches to teaching environmental education in relation to differences among children; help define testable program goals; develop better training of teachers; and identify ways to use the students environment to foster an understanding of environmental concepts.

The purpose of this study was to design an Urban Environmental Education Curriculum Guide for a sixth-grade teacher in the Irvington, New Jersey schools. This study provides one strategy as to how a teacher might integrate a comprehensive Urban Environmental Education Program into an existing curriculum.

Data was collected on the development of environmental education, programs now in effect and research on the community of Irvington. The study indicated that environmental education must be interwoven into the existing curriculum with the full

understanding that environmental qualities require both an understanding of human needs and an understanding of the needs of a healthy natural environment.

It was apparent that there is a need for an in-depth preparation on the part of the environmental instructor before an urban environmental program can be implemented.

There is a need for a curriculum that will help students understand their physical, social and cultural interaction with the environment. The study indicated that environmental education must concentrate on the individual and instruct the student about his environment with regard to the environmental perceptions of the student.

The curriculum guide presented by the writer has focused on the individual and his relationship with his surroundings. It supplies the instructor with backround material,lessons and sources for further research.

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C. GOVERNMENT DOCUMENTS AND PAMPHLETS

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Caldwell,Lynton,K. Environment:A Challenge to Modern Society. New York:Natural History Press,1970,cited by George H. Moeller, USDA Forest Service,Children,Nature and the Urban Environment: Proceedings of a Symposium Fair,"Research Priorities in Environmental Education,Pennsylvania:Northeastern Forest Experiment Station,1977.

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Essex Hudson Film Center,Films 1977,New Jersey:East Orange Public Library,1977.

Garden State Library Film Circuit,Free 16mm. Films,9th.edition, 1977-1978.

Irvington Board of Education.Personal correspondence between Mr. Cohen,Assistant Superintendant of Schools, and the writer. November 3 to November 8,1977.

Irvington Public Schools, Urban Environmental Education, Irvington, New Jersey,1977.(Mimeographed.)

Lee County Environmental Education Staff, Community Resource Directory,Florida:Lee County Schools.(Mimeographed.)

Lee County Environmental Education Staff, On Campus Teaching, Florida:Lee County Schools.(Mimeographed.)

Richmond,James M. and Richard F. Morgan. National Survey of Environmental Knowledge and Attitudes of Fifth Year Pupils in England. U.S.Educational Resources Information Center, ERIC Document ED 017E.

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APPENDIX A

ADDITIONAL RESOURCES

ELEMENTARY TEACHERS GUIDE TO FREE CURRICULUM MATERIALS($12)
Educators Progress Service,In., Randolph,Wisconsin 53956.

PRESIDENT'S ENVIRONMENTAL MERIT AWARDS PROGRAM
Application and booklet on previous programs. U.S. Environmental Protection Agency,Office of Public Affairs, Washington, DC 20460.

CATALOG OF ENVIRONMENTAL FILMS
Keep America Beautiful,99 Park Avenue,New York,N.Y.10016.

N.Y. TIMES IN URBAN AFFAIRS CLASSES
N.Y. Times,229 West 43rd. Street,New York,N.Y. 10036.

FOOD IS MORE THAN JUST SOMETHING TO EAT
U.S.Department of Health,Education and Welfare,Public Health Service,5600 Fishers Lane,Rockville,Maryland 20852.

BOOKLETS ON ENERGY,MEAT,BREAD,AND THE ENVIRONMENT
Consumer Information Center,Pueblo,Colorado 81009.

EKISTICS-A HANDBOOK FOR CURRICULUM DEVELOPMENT FOR CONSERVATION AND ENVIRONMENTAL EDUCATION
Department of Education,721 Capitol Mall,Sacramento,California 95814.

TOTAL EDUCATION IN THE TOTAL ENVIRONMENT
TETE,P.O. Box 113, Wilton, CT 06897.

OUTDOOR EDUCATION ON YOUR SCHOOL GROUNDS;AN ACTION APPROACH TO BETTER TEACHING
The Resources Agency,Office of Conservation Education,1416 Ninth Street,Sacramento,California 95814.

YOU ARE THE ENVIRONMENT ($2.00)
Center for Curriculum Design, P.O. Box 350,Evanston,Illinois 60204.

HEALTH HEROES
Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N.Y. 10010.

ECOLOGY WALL CHARTS
Boy Scouts of America, Route 1, New Brunswick,New Jersey 08902.

MAN AND HIS ENVIRONMENT;INTRODUCTION TO USING ENVIRONMENTAL STUDY AREAS
Association of Classroom Teachers,1201 16th. Street, NW, Washington DC 20036.

CONSERVATION DIRECTORY;ENDANGERED SPECIES LIST
National Wildlife Federation,1412-16th Street,NW,Washington,DC 20036.

DIRECTORY OF NEW JERSEY ENVIRONMENTAL AGENCIES
Youth Environmental Society of New Brunswick, P.O.Box 1127,
New Brunswick,N.J. 08903.

ENVIRONMENTAL EDUCATION KIT
Conservation and Environmental Studies Center,Box 7596,
RD 7, Browns Mills,N.J. 08015.

ENVIRONMENTAL KIT
Mrs.Virginia Sinclair,Committee for Better Environment,Inc.,
P.O. Box 209,Holmdel,N.J. 07733.

LIFESAVER MAGAZINE;INFORMATION
John Hassert,Essex County Extension Service,900 Bloomfield Avenue,
Verona,New Jersey 07044.

ENVIRONMENTAL EDUCATION NEWSLETTER
ERIC,400 Lincoln Tower, Ohio State University,Columbus,Ohio 43210.

ERIC CENTER:ENVIRONMENTAL EDUCATION MATERIALS
Ohio State University,Division EE, 124 West 17th. Avenue, Columbus,
Ohio 43210.

ENVIRONMENTAL TEACHING MATERIALS
Essentia,Evergreen State College,Olympia,Washington 98505.

ENVIRONMENTAL EDUCATION:A BEGINNING(28 minute color film,free rental)
2323 New Hyde Park Road, New Hyde Park,New York 11040.

GLOBAL ENVIRONMENTAL NEWS
World Health Organization,Palais des Nations,Geneva, Switzerland.

ENVIRONMENTAL EDUCATION ASSOCIATION,NEWSLETTERS,CONFERENCES($15)
National Association for Environmental Education,P.O. Box 560931,
Miami,Florida 33156.

ENVIRONMENTAL INFORMATION,FILMS RESOURCES
Project Kare, Montgomery County Intermediate Unit 23, Colony Office,
Route 73 and Butler Pike,Blue Bell,Pennsylvania 19422.

RESOURCE MATERIAL,TEACHER TRAINING IN ENVIRONMENTAL EDUCATION
McKeever Environmental Learning Center,Rd.3, Box 121, Sandy
Lake, Pennsylvania 16145.

N.J. OUTDOORS MAGAZINE ($3 per year)
P.O Box 1809,Trenton,New Jersey 08625.

SMITHSONIAN MAGAZINE
Membership Service, P.O. Box 8800, Greenwich , Conn. 06835.

REFERENCE MATERIAL
Dr. Ed Ambr, N.J. Council for Environmental Education, Center for
Coastal and Environmental Studies, Rutgers University, Busch
Campus,Doolittle Building, New Brunswick,N.J. 08903.

HOW PROGRAM - REPORTING VIOLATIONS SEEN IN THE ENVIRONMENT
New Jersey Division of Fish,Game and Shellfisheries, P.O. Box 1809, Trenton,N.J. 08625. (609-292-9450)

RANGER RICK NATURE CLUB ($7 per year)
National Wildlife Federation, 1412 16th. Street,NW,Washington,DC.

WORLD MAGAZINE ($5.85 per year)
National Geographic Magazine,National Geographic Society,P.O. Box 2330,Washington,DC 20013.

ARBORICULTURES ($1.00)
International Society of Arboriculture,Arbor Day Committee, Department IN, 63 Fitzrandolph Rd., West Orange, N.J. 07052.

MANAGING THE GREAT AMERICAN FOREST
American Forest Institute,P.O. Box 873,Springfield,Virginia 22150.

NATIONAL FIRE PROTECTION AGENCY-BOOKLETS ON FIRE AND INSECTS
470 Atlantic Avenue, Boston, Mass. 02210.

ECOLOGY KIT ($5.00)
Arm and Hammer Division, Church and Dwight Company, Department EK, 2 Pennsylvania Plaza, New York, N.Y. 10001.

HOW TO START A SCHOOL GARDENING PROGRAM ($10.00)
Gardens for All Inc., P.O. Box 2302, Norwalk, Conn.06852.

APPENDIX B

ADDITIONAL ORGANIZATIONS WITH VARIED MATERIAL AVAILABLE

National Association for Educating Young Children,1834 Conn.Avenue Washington,DC 20009.

Chevron Chemical Components, P.O. Box 3744, San Francisco, California 94119.

New Jersey Audubon Society, 790 Ewing Avenue, Franklin Lanes, N.J. 07417.

Sierra Club of New Jersey,360 Nassau Street, Princeton,N.J. 08540.

New Jersey Society for Environmental Education,Ms. Schoeck, P.O. Box 333, Island Heights,N.J. 08732.

New Jersey Marine Education Association,Mr. Cooper, 237 Long Branch Avenue, Bayville,N.J. 08721.

New Jersey Science Teachers Association,Mr. Fuhrmann,Hackensack, N.J. 07601.

Cooperative Extension Service, Cook College, Rutgers University, New Brunswick,N.J. 08903.

Institute for Science, Tochnology and Social Science Education, Ritgers State University,Doolittle Hall,New Brunswick,N.J. 08903.

Conservation and Economic Development Department,State Promotion Office, P.O. Box 1889,Trenton ,N.J. (609-292-2367).

Education Nature Center, Washington Crossing,New Jersey, (609-737-0609). Outdoor Trails and inside presentations.

Greater Trenton Chamber of Commerce, 104 North Broad Street, Trenton,New Jersey. (609-393-4143)

Wilderness Society, 729 15th. Street, 709 Wire Building, Washington, DC 20005.

American Forest Institute, 1619 Massachusetts Avenue, NW, Washington, DC 20036.

Statue of Liberty National Monument,Liberty Island, New York, N.Y. 10004.(212-732-1236)

Land Use Decision Making Kit, E-P Education Services, 21 Merritt Street, Hamden, Ct. 06511.

Edward W. Sheets, Institute for Environmental Studies, 112 Sieg Hall, FR-40, University of Washington, Seattle, Washington 98195.

Germaine Z. Cummings, Washington State Energy Office, 418 Sieg Hall , FR-40, University of Washington, Seattle, Washington 98195.

Britannica Films, 425 North Michigan Avenue, Chicago ,Illinois 60611.

Environmental Psychology Program,CUNY, New York,N.Y.

Briavel Holcomb, Urban Studies, Livingston College, Rutgers University,New Brunswick.

Broadcasting Foundation of America, 52 Vanderbilt Avenue, New York,N.Y. 10017. Tape recordings available on environmental themes.

A.B. Dick, 5700 Touhy Avenue, Chicago Illinois 60648.
Air Pollution Dittos(70-132) are complimentary to teachers.

Allied Chemical Corp.,Public Relations Department,40 Rector Street, New York City 10006.

Curriculum Development Council for Southern New Jersey, Glassboro State College, Glassboro,N.J. 08028. Resource book available.

Ford Motor Company,Educational Affairs Department,The American Road, Dearborn,Michigan 48121.

NASA, Scientific and Technical Information Facility, P.O. Box 33, College Park,Maryland 20740.

Maine Environmental Education Project,Title III,E.S.E.A., Intermediate School, Yarmouth , Maine 04096.

Public Affairs Pamphlets, 381 Park Avenue, South,New York,N.Y. 10016.

Pollution Control Education Center, Union Public Schools, 2369 Morris Avenue, Union ,N.J. 07083.

Scientists Institute for Public Information, 30 East 68th. Street, New York,N.Y. 10020.

Resources for the Future, 1755 Massachusetts Avenue,NW,Washington, DC 20036.

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National Safety Council,425 North Michigan Avenue, Chicago, Illinois 60611.

American School Health Association, 107 South Depeyster Street, Kent,Ohio 44240.

Small Towns Institute, P.O. Box 517, Ellensburg, Washington 98926.